

**NEEDS ASSESSMENT FOR CAREER DEVELOPMENT PROGRAMS IN THE
TAIWAN POWER COMPANY (TPC)**

A Dissertation

by

YI-HSUAN LEE

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2005

Major Subject: Educational Human Resource Development

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Approved as to style and content by:

Kenneth E. Paprock
(Chair of Committee)

Homer Tolson
(Member)

Walter F. Stenning
(Member)

Gonzalo Garcia, Jr.
(Member)

Michael J. Ash
(Member)

Jim Scheurich
(Head of Department)

May 2005

Major Subject: Educational Human Resource Development

ABSTRACT

Needs Assessment for Career Development Programs in the
Taiwan Power Company (TPC). (May 2005)

Yi-Hsuan Lee, B.A., Fu Jen Catholic University, Taiwan

Chair of Advisory Committee: Dr. Kenneth E. Paprock

The harmonious meshing of employee career development needs and corporate missions, goals, and objectives is a necessity for the growth and maintenance of both the individual and the organization. This study was designed to investigate Taiwan Power Company (TPC) white-collar employees' perceptions of career development program needs. The purposes of the study were (a) to identify the perceptions of career development program needs; (b) to explore the underlying constructs among current and future positions in regard to the employee's perceptions of career development program needs; (c) to investigate the differences among perceptions of career development needs; (d) to determine whether or not differences among perceptions of career development program needs exist among respondents who differ in terms of gender, age, and education; and (e) to discover if individuals who differ in terms of job functions and job roles have different opinions on whether the selected career development programs were already provided or should be provided by the company.

This study was conducted using a questionnaire. The data were collected from a stratified random sample of 1,636 white-collar employees in the TPC. A response rate of 82.5% resulted in a final sample of 1,351 respondents.

The content validity of the questionnaire was established via expert opinion and the internal consistency of the instrument was calculated using Cronbach's α . Frequency counts, central tendencies and standard deviations were used in the descriptive analysis of the current and future position data. Principle factor analysis with Varimax rotation revealed six constructs for the current position data. Similar factor analytical results were obtained for the future position data. Two-way MANOVAs with Descriptive Discriminant Analysis and univariate ANOVAs, with REGWF when appropriate, were used to probe significant main effects. Chi-square tests were employed to answer the research questions regarding the perceptions of whether the 33 career development programs were already provided or should be provided by the company. Differences in terms of current and future positions were obtained for individuals who were classified by job function, job role, gender, age, and education. Twelve conclusions were generated and specific career development practices were suggested.

DEDICATION

To my parents, my boyfriend, and my friends

ACKNOWLEDGEMENTS

Many individuals have contributed to the completion of this dissertation. I would like to acknowledge the individuals who have made significant contributions to making this journey meaningful and to bringing this project to completion.

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CHAPTER I

INTRODUCTION

Today's highly turbulent changes, such as the global environment (both internal and external), have led to abundant changes in organizations. Reorganizing, downsizing, rightsizing, and flattening the organizational pyramid have had a great impact on recruiting, retaining, managing, and motivating the workforce because of the changing relationships between organizations and their members. Under this intensely competitive environment, organizations must continually strive to improve performance, quality and productivity. The ability to balance the highly unpredictable changes within and outside the organizations and the increasing demands on improving the performance and gaining a competitive advantage lies in the continual development of an organization itself and individuals within it. Growing numbers of organizations have gradually shifted their focus to the role of human resources in the workplace and now view their employees as human capital that requires preventative maintenance by way of education, training, and counseling (Herr, 1992; Baruch, 1999). Career development, viewed as a human resource approach to organizational development, is an effective way to consider both the organizational development and individual development together.

Comprehensive alignment is the way in which organizations have begun to emphasize personnel development (Gilley, 1997; Bernes, 1999). Researchers in economics, employment counseling, and public administration agree that what was once

This dissertation follows the style and format of the *Human Resource Development Quarterly*.

career development for employees is now career development for organizations (Watts, 2000; Clark, 1992; Field and Harris, 1991; Schmidt, 1990). Organizational career development addresses the alignment of the subjective career aspects of individuals and the objective career aspects of the organization in order to achieve the best fit between individual and organizational needs (McDougal & Vaughan, 1996; Rothwell & Sredl, 1992). Career development thus is viewed as a mutual role, based on the needs of both individuals and organizations.

Career development programs benefit the organization in several ways: increased job satisfaction, increased career commitment, reduced turnover, better communication, equal opportunities for women and minorities, increased motivation of employees, improved maintenance of employee skills and increased effectiveness of human resource systems and procedures (Leibowitz et al. 1986; Simonsen, 1997; Rosser & Egan, 2003; Rita & Kirschenbaum, 1999; Baruch, 1996). Consequently, implementation of organizational career development programs is one way to assure the mutual benefits for both individuals and organizations.

A comprehensive organizational career development plan forces the organization to identify its needs, plan for its human resources, and fulfill the training requirement. As Simonsen (1997) pointed out, "Career development planning includes needs assessment, to determine appropriate training and development activities, and measurement, and to determine whether any learning took place" (Simonsen, 1997, p.6). An effective career development program requires a system approach when designing programs (Leibowitz, Farren & Kaye, 1985; Simonsen, 1997). According to Walker and Gutteridge (1979),

“the apparent key to making career planning effective is commitment to applying specific practices to satisfy the needs of specific employee groups... General programs rarely get off the ground (p. 3)”. Therefore, the design of a career development system must be directly linked back to the specific needs of the target group or to the problems within an organization in order to make adequate justification of the expenditure of time, money, and resources. Human resource development professionals need to find ways to identify the specific needs of employees, managers, and organizations in order to allocate limited resources efficiently. “A needs assessment process can uncover all these variations and reinforce or change perceptions that the designers have about what is needed by whom and also about what will be accepted” (Simonsen, 1997). To achieve a successful career development program, needs assessment remains essential.

As defined by Kaufman (1995, 1998), needs assessment is “the formal process of identifying needs as gaps between current and desired results, placing those needs in priority order based on the cost to meet each need versus the cost for ignoring it, and selecting the most important needs (problems or opportunities) for reduction or elimination” (1995, 1998). Many researchers have suggested a number of frameworks for conducting needs assessment (Altschuld & Witkin, 2000, Cline & Seibert, 1993, Kaufman, 1987, Hammond, 2001, Harp, 1995, Kaufman & Triner, 1996, Leibowitz, Farren & Kaye, 1986, Leigh, Watkins, Platt & Kaufman, 2000, McClelland, 1992, Steadham, 1980, Witkin & Altschuld, 1995). The frameworks can be categorized in three phases: (1) preassessment, which is to explore the context and environment of the perceived problem in order to identify needs before analyzing them; (2) assessment, in

which data gathering is the primary activity; (3) postassessment, in which the major tasks are appraisal, clarification, and preliminary prioritization of the outcomes that occurred in the second phase.

The most common techniques used for conducting needs assessment are interviews and questionnaires. Questionnaires are relatively inexpensive, can reach a large number of people in a short time, give opportunity for expression without fear of embarrassment and produce data that can be easily summarized and reported (Steadham, 1980; McClelland, 1994a; Brown, 2002). Since alignment of individuals and organizational needs is imperative and questionnaires are efficient tools for needs assessment, the undertaking of needs assessment via questionnaire in a large-scale organization such as the Taiwan Power Company seems warranted.

Statement of the Problem

For a long time, the Taiwan Power Company (TPC), a state-run enterprise, has played an important role in supplying power to support Taiwan's economic and industrial developments. At present, two critical governmental policies have strongly impacted the organizational structures of TPC: (a) liberalization of the power industry, and (b) privatization of the TPC.

In order to cope with the problems of power shortages and power development, Taiwan's government began the liberalization of power generation in 1995. Since the deregulation, the TPC has been competing with the Independent Power Plants. The TPC needs to develop strategies to cope with the keen competition.

Additionally, the Taiwanese government has decided to privatize the monopolistic enterprise. Researchers at the 1996 Taiwan National Development Conference suggested that all government-owned enterprises be privatized in five years. The Taiwan Executive Yuan Council¹ decided to privatize the TPC by June 30, 2001.

The TPC is now facing several critical issues in the transition to privatization, such as manpower adjustment concerns about the problems of reduction in staffing levels, job transfers within the electric utility, and job transfers due to diversification. Other issues, such as organizational restructuring, employee demoralization, and improvement of productivity also need to be addressed. Hence, how to keep an employee's commitment to the organization and improve his/her performance are important to the TPC during the time of privatization.

Chang (1999a), after conducting a study of the TPC employee's career planning, education, training and performance in a publicly-owned organization, indicated that the establishment of a well-designed career development system might lead to higher employee satisfaction and could further improve the productivity and performance. Tsay (2001), in his study of the relationships among personal characteristics, career perception, and organizational commitment for the TPC, also remarked that the degree of organizational commitment would increase as the level of the employee's career

¹ The Taiwan Executive Yuan Council is a policymaking organization. The council evaluates statutory and budgetary bills and bills regarding martial law, amnesty, declarations of war, conclusion of peace to treaties, and other important affairs, which are to be submitted to the Legislature, as well as matters of common concern to the various ministries and commissions (The Republic of China Yearbook, 2001).

perception increased. Additionally, in 1998, Lin, investigating the factors of career plateau and career satisfaction of employees in one department in the TPC, discovered that more than 78% of the employees in this department agreed that they had career plateaus, and only 49% of the employees were satisfied with their career development. Lin also identified several factors which might cause a career plateau, including few opportunities of promotion which blocks the advancement channels, insufficient training and development for employees, insufficient motivation of employees, lack of flexible job assignments, and a lack of well-designed performance appraisal.

Considering the significant results of these studies (Tsay, 2001; Chang, 1999a, Lin, 1998), implementing a career development program is an efficacious approach to enhancing an employee's organizational commitment and to improve an employee's performance and productivity. Tsay (2001) indicated that a career development program not only assists employees in planning their career according to the organizational working requirements and strategies, but it also improves the employee's motivation. Additionally, Chen, Chang, and Yeh (2004) pointed out that if the employees perceive that the company fulfills its obligations via providing suitable career development practices, such as promotion, training and support, employees will strive to fulfill their obligations by showing greater organizational commitment, higher job satisfaction and lower turnover levels. In accordance with these points of view, training systems which include career development programs in a manner that fit the needs of the individuals within the organization are imperative. Although the TPC has provided training and development programs in which there are some aspects regarding career development as

defined by career development experts and researchers, a formal program which attempts to develop employee careers has not been offered in the company.

Purpose of the Study

The purpose of career development programs in an organization is to address the needs of both the organization and its employees. The specific needs of individuals in career planning should be understood before a career development program can be implemented. The tasks of needs assessment can help provide information required to customize a career development program as well as ensure that the important issues and needs that surface are broad enough to warrant extensive intervention (Leibowitz, Farren & Kaye, 1986). Hence, conducting a needs assessment is the first step and most critical stage in designing a career development program.

The present study was undertaken to investigate white-collar employees' perceptions of career development program needs in the TPC. A needs assessment was conducted for planning future career development programs for employees in the company. The assessment was achieved by developing and administering a questionnaire entitled "Career Development Needs Assessment Survey". Special issues were explored, such as (a) determining the underlying constructs among present and future positions in regard to the employee's perceptions of career development needs regarding the career development programs; (b) identifying the white-collar employee's perceptions of career development program needs in terms of different job functions and job roles; (c) investigating the differences among perceptions of career development

program needs in terms of different job functions and roles; (d) uncovering whether or not differences among career development program needs are related to differences among respondents who differ in terms of demographics, including age, gender, and education; and (e) discovering if individuals who differ in terms of job functions and job roles have different opinions on whether the selected career development programs were already provided or should be provided by the company.

Research Questions

The purpose of the study was to investigate perceptions of career development program needs for employees in the TPC in order to formulate career development programs. The following research questions and hypotheses were studied to assess the white-collar employees' perceptions of career development program needs:

Research Question 1

What are the TPC's white-collar employees' perceptions of career development program needs in terms of their Job Function (Technology, Management, and Business/Sales)?

Research Question 2

What are the TPC's white-collar employees' perceptions of career development program needs in terms of their Job Role (Employee, Line-Manager, and Upper-Manager)?

Research Question 3

What are the constructs underlying the perceived career development program needs assessed via questionnaire (Career Development Needs Assessment Survey)?

Research Question 4

Are there differences in the perceptions of career development program needs among the TPC's white-collar employees in terms of their Job Function and Job Role for their current positions?

Based on this research question, the following hypotheses stated in the null form were identified:

- There are no significant interactions between Job Function and Job Role with regard to the perceptions of career development program needs for current positions.
- There are no significant differences in responses with regard to career development program needs for current positions for respondents who differ in terms of Job Function.
- There are no significant differences in responses with regard to career development program needs for current positions for respondents who differ in terms of Job Role.

Research Question 5

Are there differences in the perceptions of career development program needs among the TPC's white-collar employees in terms of their Job Function and Job Role for their future positions?

Based on this research question, the following hypotheses stated in the null form were identified:

- There are no significant interactions between Job Function and Job Role with regard to the perceptions of career development program needs for future positions.
- There are no significant differences in responses with regard to career development program needs for future positions for respondents who differ in terms of Job Function.
- There are no significant differences in responses with regard to career development program needs for future positions for respondents who differ in terms of Job Role.

Research Question 6

Are there significant differences among perceptions of career development program needs for individuals who possess different demographic variables of Gender, Age, and Education?

The research hypotheses associated with this research question were formulated to determine self-expressed career development program needs in regards to respondents' Gender, Age, and Education. The hypotheses, restated in the null form were:

- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Gender.
- There are no significant differences in responses with regard to perceptions of career development program needs for future positions for respondents who differ in terms of Gender.
- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Age.

- There are no significant differences in responses with regard to perceptions of career development program needs for future positions for respondents who differ in terms of Age.
- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Education.
- There are no significant differences in responses with regard to perceptions of career development program needs for future positions for respondents who differ in terms of Education.

Research Question 7

Are there differences in the proportions of respondents' perceptions that the company already provided the selected career development programs?

This research question was addressed by utilizing the total sample and the classification variables of Job Function and Job Role. The hypotheses associated with this research question stated in the null form were:

- There is no significant difference in the proportion of participants' responses with regard to whether respondents believed the organization already provided the career development programs.
- There is no significant difference between the proportions of participants' responses with regard to whether respondents believed the organization already provided the career development programs for individuals with different levels of Job Function.
- There is no significant difference between the proportions of participants' responses

with regard to whether respondents believed the organization already provided the career development programs for individuals with different levels of Job Role.\

Research Question 8

Are there differences in the proportions of respondents' perceptions that the company should provide the selected career development programs?

This research question was addressed by utilizing the total sample and the classification variables of Job Function and Job Role. The hypotheses pertaining to this research question stated in the null form were:

- There is no significant difference in the proportion of participants' responses with regard to whether respondents thought the organization should provide the career development programs.
- There is no significant difference between the proportions of participants' responses with regard to whether respondents thought the organization should provide the career development programs for individuals with different levels of Job Function.
- There is no significant difference between the proportions of participants' responses with regard to whether respondents thought the organization should provide the career development programs for individuals with different levels of Job Role.

Definition of Terms

The following section contains the definitions that are germane to this study.

Career: In this study the term “career” was defined as a lifelong process that consists of the sequence of activities and related attitudes/behaviors that occur as a person’s work life unfolds (Hall, 1976).

Career development: The term “career development” as defined by Gutteridge (1986) refers to “the outcomes of actions on career plans as viewed from both individual and organizational perspectives” (p. 52).

Career development need: This term was defined in this study as the self-responded degree of need for a specific career development program by the white-collar employees in the TPC.

Career development programs: In this study, the term “career development programs” refers to systematic efforts, both formal and informal, provided by companies to facilitate individual career development and to assist companies to achieve their objectives. These efforts typically consist of goals, objectives, activities, and methods for evaluating the effectiveness of the activities in achieving the goals (Niles & Harris-Bowlsbey, 2002).

Career development system: This term involves an organized, formalized, planned, and on-going effort to accomplish a balance between the individual’s career needs and the organization’s workforce requirements (Leibowitz, Farren & Kaye, 1986).

Career management: “Career management” is defined as “an ongoing process of preparing, implementing, and monitoring career plans undertaken by the individual alone or in concert with the organization’s career system” (Gutteridge, 1986, p. 53)

Career planning: “Career planning” was defined as “a deliberate process for becoming aware of self opportunities, constraints, choices and consequences; for identifying career-related goals; and for programming of work, education and related developmental experiences to provide the direction, timing and sequence of steps to attain a specific career goal” (Gutteridge & Otte, 1983, p.7).

Job function: In this study, this term was used to describe the type of corporate activities that were performed by the white-collar employees of the TPC. Individuals who were responsible for conducting management tasks were classified as Management. White-collar employees who were responsible for business or sales were classified as Business/Sales and those employees who were responsible for the machinery and engineering of the TPC were given a job function title of Technology.

Job role: In this study, this term was used to classify white-collar employees in terms of defined corporate leadership status. Upper-Manager was the terms used to classify individuals who were in the top or middle levels of the corporate ladder. Individuals in the TPC who were in charge of the base-line management were classified as Line-Managers. The remaining workers were labeled as Employees.

Organizational career development: “Organizational career development” in this study refers to a process or a planned effort to link the individual’s career needs with the organization’s workforce requirements and strategic directions (Gutteridge, Leibowitz &

Shore, 1993). It also refers to the results occurring through the interaction between individual career planning and institutional career management processes (Gutteridge & Otte, 1983).

Needs assessment: In this study, this term was used to refer to “a systematic set of procedures undertaken for the purpose of setting priorities and making decisions about program or organizational improvement and allocation of resources. The priorities are based on identified needs” (Witkin & Altschuld, 1995, p. 4).

Significance of the Study

As with many organizational career development thrusts, needs assessment is a critical first step in designing a comprehensive career development program in which to build the employees’ awareness, understanding, and readiness to the process. A career development system will only be successful and well perceived to the extent that needs are carefully assessed, and programs developed and implemented for meeting those needs (Brown, 2002).

In this study, not only were the employees’ perceptions of career development program needs for their current positions tapped, but their perceptions of potential career development program needs at some point in the future were identified as well. In addition, the information from different perceptions of career development program needs from employees with different job functions and job roles and comparisons of responses from different perspectives contributes to the body of knowledge in the designing of organizational career development systems. Since none of the career

development researchers have approached career development from the perspective of employees in various job functions and job roles, the findings from this study may enable human resource professionals and career development experts to better understand and be more aware of perceived career development program needs from various information sources.

The information obtained from this study should assist in the construction and design of career development practices. The knowledge of career development program needs assessment synthesized from this the study may help human resource practitioners in similar institutions to improve their techniques in identifying career development program needs. Furthermore, the results of this study may serve as input for the designing of career development programs in the TPC and provide direction for the design and implementation of an effective career development system by the top management of the company. Finally, the perceptions of career development program needs among the white-collar employees in the company would not only be identified, but also the appropriate allocation of limited resources, the delivery of useful results, and the tailoring of programs in a manner that addresses specific needs of various target groups can be ensured as well when and if career development practices are implemented in the company.

Assumptions

The assumptions of this study were as follows:

1. The participants of the study understood the directions and instructions for completing the questionnaire and provided information that accurately represents their perceptions.
2. The selected sample utilized in this study is representative of the population.
3. Although the majority of career development concepts are based on the literature from Western perspectives, the concept of career development in Taiwan has been greatly influenced by the Westernized concept (Chang, 2002). Therefore, it is assumed that there is no culture difference in understanding the construct of career development in Taiwan and United States.

Delimitations

This study was delimited to:

1. white-collar employees
2. the Taiwan Power Company (TPC).
3. the year of 2002.

Limitations

The conclusions from this study may be generalized only to the white-collar employees in the Taiwan Power Company. The findings may not be easily generalized to the blue-collar employees in this company or employees at other organizations.

Additionally, as Gall and his associates (2002) indicated, the disadvantages of survey research are the “respondents can conceal information that they don’t want others to know. Also, even if respondents want to give accurate information, they may not have the self-awareness to do so” (p.173).

Overview of Remaining Chapters

This section outlines the remaining chapters. A review of the literature that encompasses previous research and relevant literature related to organizational career development programs is provided in Chapter II. The research methodology containing: 1) a description of the setting, population, and sample; 2) development of the questionnaire; 3) the survey procedure; and 4) plans for data analysis are outlined in Chapter III. The data obtained and the findings from the analysis of the survey data are presented in Chapter IV. A summary of the study, discussions of the findings, conclusions of this research, and recommendations for further research and TPC practices are provided in Chapter V.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The purpose of the present study was to investigate the perceptions of career development program needs of white-collar employees in the Taiwan Power Company through a questionnaire, concerning organizational career development programs, in order to determine perceptions of career development program needs across different job functions and job roles.

The literature review was rather selective, focusing on those areas which were directly related to the specific factors relevant to the study: (1) a brief overview and synthesis of the principle concepts of organizational career development systems, (2) a review of the planning models of career development systems and needs assessment in organizations, (3) a review of literature specifically associated with organizational career development programs, and (4) a brief introduction to career development in Taiwan.

Organizational Career Development Systems

Since 1970, there have been concerns about the improvement of the quality of the working life of employees, managers, policy makers and scholars in North America. People from all walks of life not only call for material enjoyment, but also for psychological contentment (Beach, 1980). Organizations have thus shifted their focus more to the technological, social, economic, and psychological needs of their workers. Researchers and practitioners have been devoted to creating and designing appropriate career development systems in order to meet the changing needs of individuals and organizations. Researchers and practitioners also proposed diverse terms, concepts, and components with respect to career development in organizations. However, a clear definition of the terms, concepts, and components of organizational career development is demanded for structuring a comprehensive study. Thus, the terms, concepts, and components associated with organizational career development are illustrated in this study through conceptual review and synthesis of related researches.

Hall (1976, 1990), one of the first researchers to study the field of organizational career development, defined career as “the individually perceived sequence of attitudes and behaviors associated with work-related experiences and activities over the span of the person’s life” (p. 4). This definition of career has been frequently cited by researchers and has gained the more widely accepted conceptualization of career (Orpen, 1994; Ganakas, 1982; Bernes, 1998; Cummings & Worley, 2001).

Since the 1970s, career development has been transformed from providing tools which facilitate individual growth to approaches linked with organizational strategies

and development. Career development addresses the alignment of the subjective career aspects of individuals and the objective career aspects of the organization in order to achieve a match between individual and organizational needs as well as personal characteristics and career roles (Hall, 1971; McDougal & Vaughan, 1996; Rothwell & Sredl, 1992). Hence, a general agreement was reached in association with career development systems (Portwood, 1981; Gutteridge & Hutcheson, 1984; Leibowitz, 1987; Schein, 1978).

The general definition of career development systems was characterized as a system that matched the needs of an individual to the requirements of an organization. Leibowitz, Farren, & Kaye (1986) indicated that a career development system is “an organized, formalized, planned effort to achieve a balance between the individual’s career needs and the organization’s workforce requirements” (p.4). Within this context, two separate but interrelated functions are contained in the career development system: career planning, which is an individual level approach to explore himself/herself and career opportunities, and career management, which is an organizational level approach to match the needs of individual and the needs and support of the organization (Gutteridge, 1986; Gilley, 1989; Gutteridge & Otte, 1983; DeSimone, Werner, & Harris, 2002). Career planning is defined as “a deliberate process of (1) becoming aware of self, opportunities, constraints, choices, and consequences, (2) identifying career-related goals, and (3) programming of work, education, and related developmental experiences to provide the direction, timing, and sequence of steps to attain a specific career goal” (Gutteridge, 1986, p. 52), whereas career management is described as “an on-going

process of preparing, implementing, and monitoring career plans undertaken by the individual alone or in concert with the organization's career systems" (Gutteridge, 1986, p. 52).

Career development responsibilities are regarded as being shared by the employees, the managers, and the organization (Leibowitz, Farren, & Kaye, 1986; Simonsen, 1997; Boudreaux, 2001). Leibowitz, Farren, & Kaye (1986) clarified each role played in the career development system: the organization is responsible for offering programs and support, for assisting employees in career planning and development, for providing the main information associated with future and current opportunities, and for strengthening the managers' roles in employees' career development. Managers are responsible for providing vital support for employees' career development and planning, communicating organizational policies to employees, and providing the linkage between appropriate resources and people to employees. Finally, the individual employees need to assess their skills, values, and interests; set realistic career goals, and accomplish their career objectives. Although employees, managers, and organizations share different responsibilities in the career development system, "organizations need to combine a blend of approaches into a comprehensive program directed to the unique needs and concerns of their employees and their organization" (Bernes, 1998, p. 47).

Organizational career development is the process of planned efforts to link the individual's career needs with the organization's needs and strategies (Gutteridge, Leibowitz, & Shore, 1993). Along with this concept, Gutteridge et al. (1993) proposed three assumptions associated with the field of organizational career development. First,

development is an on-going process. The career development system is aligned with Human Resource structures and procedures, and with the initiatives of the organization. Second, employees, managers, and organizations play varying significant roles in a career development system. Third, *system thinking* is a principal concept to organizational career development.

After illustrating the general concepts and components of organizational career development, the question remaining to be answered is why implement a career development system? Through reviewing relevant literature and the results from experimental studies, the intended outcomes and benefits can be synthesized into two perspectives: organizational and individual. From the organizational perspective, the intended outcomes and benefits of implementing a career development system in organizations include the following goals: to promote job satisfaction, to enhance employee productivity, to reduce employee turnover, to maintain higher retention levels, to increase employee motivation and commitment, to develop and promote employees from within the organization, to meet the long-term and short-term human resource needs, to enhance effectiveness of human resource system and procedure, to demonstrate the organizational commitment of employees, to communicate career opportunities to an employee's better strategic advantage, to diversify employee skills, to improved maintenance of employee skills, and to achieve the best match between people and jobs (Gutteridge, 1986; Leibowitz, Farren, & Kaye, 1986; Hall, 1986; Schein, 1978; Bernes & Magnusson, 1996; Storey, 1979; Gutteridge, Leibowitz, & Shore, 1993; Gutteridge & Otte, 1983; Portwood & Granrose, 1986; Chao, 1990; Burack & Mathys, 1980; Rosser &

Egan, 2003; Morrall, 1998; Simonsen, 1997). From the individual perspective, the desired results include better self-understanding, identification of desired career goals, personal growth, enhanced employability, better quality of life, enrichment of present jobs, individual success in organizations, increased job satisfaction, and equal opportunities for women and minorities (Leibowitz, Farren, & Kaye, 1986; Storey, 1979; Gutteridge, 1986; Portwood & Granrose, 1986; Orpen, 1994; Simonsen, 1997; Rita & Kirschenbaum, 1996; Chen, Chang, & Yeh, 2004).

As has been previously mentioned, it is quite obvious that the implementation of an organizational career development system can generate several benefits and can serve to integrate individual career planning and interests with specific organizational strategic needs. However, Gutteridge (1986) pointed out that career development systems in some organizations have been established without regard to an overall plan and integration approaches. This situation has resulted in growth in a haphazard fashion that is peripheral to the organization's concerns rather than being part of the human resource mainstream. A career development system in an organization is more than a one-time event (Leibowitz, Farren, & Kaye, 1986). Hence, planning organizational career development in a systematic manner is highly recommended. It pushes the organization to identify its needs and to concomitantly design for its human resource and training requirements (Bernes, 1998).

Models for Planning Organizational Career Development Programs and Needs Assessment

In the following section, the models for comprehensively planning organizational career development programs are reviewed and discussed.

Models for Planning Organizational Career Development Programs

As Kaye (1981) stated:

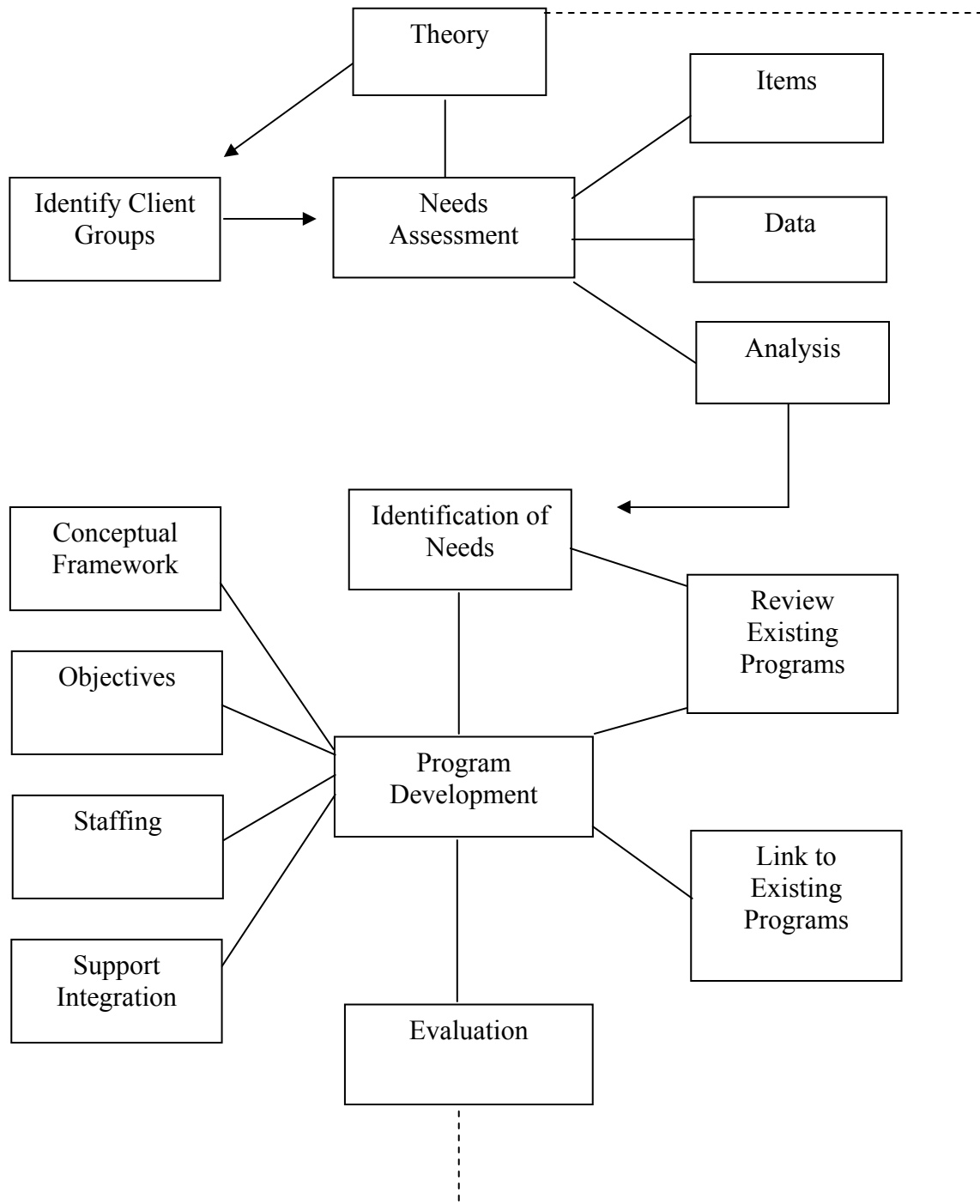
It is a new way of thinking about human resources that considers the interrelationships between the individual and the organization, between all other human resource development activities and career development programs. Viewed in this way, career development becomes a process, one that can link together numerous activities in the personnel management area, rather than simply an event that is separate from on-going activities in the organization (p. 37).

However, a firm rationale is lacking for initiating career development programs. Without relating to an overall conceptualization or plan, the programs grow in a piecemeal and haphazard fashion and are frequently peripheral to an organization's main concerns and activities (Leibowitz & Schlossberg, 1981; Gutteridge, 1986; Imel, 1982). For this reason, researchers strive to develop a system framework for planning career development programs for a long-term career system in organizations [Leibowitz & Schlossberg (1981), Leibowitz, Farren, & Kaye (1985), Gutteridge (1986), Lancaster, & Berne (1981), Simonsen (1997), and Niles & Harris-Bowlsbey (2002)].

In this section, a broad review of the range of program planning possibilities are portrayed and the appropriate procedures of needs assessment for organizational career development programs are identified. Leibowitz & Schlossberg (1981) provided “the conceptual model that emphasizes integrating career development with the organization’s other on-going programs” (p. 277). The model consists of three main components as displayed in Figure 2.1.

Needs assessment is an essential step to begin establishing goals in order to formulate more relevant and responsive objectives. Then, program development involves the selection and implementation of specific program activities. Finally, evaluations, which program designers point out are often neglected, are vital to the program’s continued effectiveness and survival. Leibowitz & Schlossberg stated that the model should be presented on an on-going basis that interacts with other components of program design.

Figure 2.1. Career Development System (Leibowitz & Schlossberg, 1981)



Another method for designing career development programs was proposed by Leibowitz, Farren, and Kaye (1985, 1986). They surveyed 50 organizations in order to identify how often organizations actually build their programs around system concepts when they practice career development. They then identified 12 principles contributing to the success of a career development program. These principles are used to construct a process that is essential for creating change efforts in organizations. Three steps, which comprise this change process, were then synthesized in the study including: analyzing needs; building a vision and a model; and developing and implementing a strategy. The following 12 key principles identified from the survey data have been organized around these four steps:

1. Stay specific.
2. Tie the program to existing HRD structures.
3. Tailor the program to organizational culture.
4. Build from a conceptual base.
5. Design long-term approaches with short-term payoffs.
6. Formalize some aspects of the program.
7. Design multiple methods.
8. Co-design and manage the project.
9. Ensure top management support.
10. Involve managers.
11. Publicize accomplishments.
12. Start small – pilot, evaluate, and redesign.

In 1986, Leibowitz, Farren, & Kaye further illustrated their model in their book entitled *Designing Career Development Systems*. They regarded designing and implementing a career development system as introducing change into an organization. Therefore, a model that they used (described by Beckhard & Harris (1977) and built on the concept of their survey study) was applied to create change through career development. The essential elements for change in this model included: needs, vision, an action plan, and results (see Table 2.1).

Table 2.1 The Model of Designing a Career Development System Proposed by Leibowitz, Farren, & Kaye (1986, p.11)

<i>Needs</i>	<i>Defining the present system</i>
	Address specific needs and target groups
	Assess current human resource structures
	Investigate organizational culture
<i>Vision</i>	<i>Determining new directions and possibilities</i>
	Build from a conceptual base or model
	Design multiple interventions for employees and the organization
	Involve managers
<i>Action plan</i>	<i>Deciding on practical first steps</i>
	Assure top management support
	Codesign and manage project with an advisory group
	Create a pilot and establish a budget and staffing plan
<i>Results</i>	<i>Maintaining the change</i>
	Create long-term, formalized approaches
	Publicize the program
	Evaluate and redesign

Gutteridge (1986) developed another program planning model. He believed this career-planning model could maximize the probability of a successful, long-term career

system. He also asserted “organizational career development programs should be issue and objective oriented rather than technique driven” (p. 75).

Accordingly, Gutteridge’s program-planning model begins with the first step of conducting needs assessments to explore what an organization wishes to achieve through a career development program. The second step is to identify success indicators. The third step in establishing an organizational career development system is to evaluate the availability and effectiveness of existing human resource processes, tools, and techniques that can be integrated into a total program. The fourth step in the career-planning model is to design career development programs that are compared against the existing systems and examined by the needs of target groups. The fifth step involves developing implementation strategy. The sixth step in the planning model contains the actual implementation and evaluation of the career system on a pilot basis.

Based on the evaluation in the sixth step, the final step of the career-planning model is to refine and then implement the career development system at a full-scale level. Gutteridge maintained that a conceptual framework for planning organizational career development programs in a systematic manner is provided by this model. He also addressed that this approach can be used to evaluate the comprehensiveness of an already-existing career development system, and to modify the specific needs of an organization.

Imel (1982), by reviewing and synthesizing the Lancaster & Berne efforts, provided a guide which serves as a framework for planning career development activities in a systematic manner. Nine tasks for utilization in planning career

development within organizations are presented in this guide. Nevertheless, Imel suggested that the program's designer could change the order of the nine development tasks to respond to the specific needs of the organization.

One of the possible orders suggested by Imel for implementing career development programs is as follows: (1) conducting needs assessment; (2) assessing organizational readiness and commitment; (3) forming a team; (4) staffing the program; (5) setting program goals; (6) assessing program resources; (7) designing the program; (8) implementing the program; and (9) evaluating the program.

Simonsen (1997) provided eight steps in the designing of comprehensive career development systems with an intention to contribute to a development culture in the organization. The eight steps, not necessarily linear, in the career development design process that will contribute to a successful intervention were (Simonsen, 1997, p. 228):

1. Identify the organization's and the individual's needs
2. Envision desirable outcomes
3. Get buy-in from stakeholders
4. Determine design elements and the process
5. Design or purchase components
6. Communicate and educate
7. Implement the process
8. Evaluate and keep the process alive.

Another process of designing and implementing a career development program was proposed by Niles & Harris-Bowlsbey (2002). They indicated that careful, thought-out program planning can provide the basis for determining program content, methods of delivery, evaluation, and a clear description of the program for the clients. This approach not only can be used in organizations, but it can also be applied in school districts. There are 10 steps involved in the designing of career development programs, including:

1. Define the target population and its characteristics.
2. Determine the needs of the target population.
3. Write measurable objectives to meet needs.
4. Determine how to deliver the career planning services.
5. Determine the content of the program.
6. Determine the cost of the program.
7. Begin to promote and explain your services.
8. Start promoting and delivering the full-blown program of services.
9. Evaluate the program.
10. Revise the program as needed.

The models mentioned above are summarized in Table 2.2.

Table 2.2 A Summary of Models for Planning Career Development Programs

Researcher(s)	Model for planning career development programs
Leibowitz & Schlossberg (1981)	<ol style="list-style-type: none"> 1. Needs assessment 2. Program development 3. Evaluation
Imel (1982)	<ol style="list-style-type: none"> 1. Conducting needs assessment 2. Assessing organizational readiness and commitment 3. Forming a team 4. Staffing the program 5. Setting program goals 6. Assessing program resources 7. Designing the program 8. Implementing the program 9. Evaluating the program.
Leibowitz, Farren, and Kaye (1983, 1985)	<ol style="list-style-type: none"> 1. Analyzing needs 2. Building a vision and a model 3. Developing and implementing a strategy
Leibowitz, Farren, & Kaye (1986)	<ol style="list-style-type: none"> 1. Needs: Defining the present system 2. Vision: Determining new directions and possibilities 3. Action plan: Deciding on practical first steps 4. Results: Maintaining the change
Gutteridge (1986)	<ol style="list-style-type: none"> 1. Conducting needs assessments 2. Identifying success indicators 3. Evaluating the availability and effectiveness of existing human resource processes 4. Designing career development interventions 5. Developing implementation strategy 6. Implementation and evaluation of the career system on a pilot basis 7. Refining and then implementing the career development system at a full-scale level

Table 2.2 (continued)

Researcher(s)	Model for planning career development programs
Simonsen (1997)	<ol style="list-style-type: none"> 1. Identify the organization's and the individual's needs 2. Envision desirable outcomes 3. Get buy-in from stakeholders 4. Determine design elements and the process 5. Design or purchase components 6. Communicate and educate 7. Implement the process 8. Evaluate and keep the process alive.
Niles & Harris-Bowlsbey (2002)	<ol style="list-style-type: none"> 1. Define the target population and its characteristics. 2. Determine the needs of the target population 3. Write measurable objectives to meet needs 4. Determine how to deliver the career planning services 5. Determine the content of the program 6. Determine the cost of the program 7. Begin to promote and explain your services 8. Start promoting and delivering the full-blown program of services 9. Evaluate the program 10. Revise the program as needed

The Role of Needs Assessment in Planning Organizational Career Development Programs

According to the review of the conceptual models for planning and designing a career development program, needs assessment is viewed and involved in the first step and is an essential element in planning an effective and systematic career development program. As noted by Zinser (1988), “organizational interventions are difficult at best, and are even more so without needs assessment” (p.21).

Gutteridge & Otte (1983) conducted a survey of 40 U.S. organizations to determine the “state-of-the-practice” in the career development field. The responses were gained when participants were asked to indicate what they would do differently if they could start their program over again. One of the most frequent responses recommended conducting needs assessment at the beginning of the program.

Hunter (1985), in his article discussing survival tactics for implementing organizational career development, described that the principle of needs assessment is a vital principle to be applied at the outset of the career development program. He also maintained that by engaging in the process of assessing needs, it is possible to evaluate how employees and managers perceive the career development effort, and to correct misunderstandings at the outset. Even if the need for career development may be obvious, the expectations, understandings, and awareness for it may differ across various groups. As Simonsen (1997) pointed out, “a needs assessment process can uncover all these variations and reinforce or change perceptions that the designers have about what is needed by whom and also about what will be accepted” (p.228). Needs assessment not

only searches out the needs of individuals and organizations, it is also a political step in building agreement and readiness to address problems as well (Leibowitz, Farren, & Kaye, 1986).

The functions of the needs assessment, as Leibowitz & Schlossberg (1981) described, consist of: (1) bridging the gap between theory and the actualization of a particular program; (2) correcting any biases and preconceived notions that the program developer may have; and (3) helping to coordinate and balance the needs of individuals with the needs of the organization. In addition, support and commitment, by involving a wide variety of people, can be obtained in the needs assessment process. Needs assessment data also provide an essential link for evaluation of career development programs (Leibowitz, Farren, & Kay, 1986).

The Objectives of Needs Assessment in Planning Organizational Career Development Programs

According to the previous review, agreement has been reached that needs assessment is deemed to be the first step for planning comprehensive and holistic career development programs. The technique driven by career development efforts rather than being responsive to desirable programmatic objectives could lead to an inefficient career development program (Gutteridge, 1986). Hence, the objectives of the needs assessment process are discussed in the following section.

As defined by Gutteridge, Leibowitz, & Shore (1993), organizational career development is “a planned effort to link the individual’s career needs with the organization’s workforce requirements.” Based on this definition, it could be stated that

the purpose of needs assessment is to identify individual needs and organizational needs.

Imel (1982) proposed that one function of needs assessment is to help balance and coordinate the needs of two groups – individuals and organizations. Therefore, the objectives of needs assessment in Imel's model are for individuals and organizations. Similarly, Gutteridge (1986) indicated that the objectives of needs assessment relate to individual issues as well as to institutional concerns. In the model of designing career development systems provided by Leibowitz, Farren, & Kaye (1986), the first principle, *need*, aims to define the current system to address specific needs and target groups, to assess the current human resource structures, and to investigate organizational culture.

According to Lebowitz & Schlossberg (1981), there are three sets of data collected in needs assessment: individual employees, the organization's decision makers, and the organizational climate. Considering the heterogeneous group of people in an organization, they then stated that the program designer should be aware of the concerns and needs of different groups of people.

From what has been said above, it could be concluded, that the objectives of needs assessment for planning career development programs fall into two groups: organizations and individuals. The category of organizations consists of the organization's decision makers, the current human resource structures, and organizational climate and culture. The category of individuals could include the different groups of people in the organization. As previously mentioned, the needs objective of the proposed study was to investigate individual needs within an organization for the purpose of planning career development programs.

“It would be an obvious mistake to assume that the needs of any one population are the same” (Zinser, 1988, p.22). The findings from Miedzinski and his associates (2001) further support this point of view.

Miedzinski and his associates (2001) undertook a survey to solicit the perceived career development needs of individuals in a medical institution. The results demonstrated that statistically significant differences existed between the subgroups identified by department, academic rank, and gender. The conclusions were made that career development needs differ and that program development can be tailored to some degree to add flexibility for identified subgroups within a global career development program.

There are heterogeneous groups of people employed in organizations who differ in their ages, backgrounds, and career specialties (Leibowitz & Schlossberg, 1981). Since people exhibit diversity in terms of their needs, stage of career, level of hierarchy, and many other characteristics (department, location, or division), the career planning and management should be widespread and diverse in order to meet the various individual needs (Baruch, 1996). In response to this, Leibowitz et al. (1986) asserted that “different target groups have unique needs and problems that must be identified; the more specific the identification, the more likely the program design is to achieve powerful results” (p. 25). Meanwhile, they explain that incorrect suppositions may be made and thinking can be based on stereotypes, and that it is necessary to build involvement and commitment in the group for the designed program. Thus, the researchers suggested that managers, minorities, new employees, plateaued employees, pre-retirement employees, technical

employees, and women are among the target groups whose specific needs and issues should be recognized when planning the organizational career development program. The assumed career development needs of these four groups were clearly described in the researchers' book, *Designing Career Development Systems*.

In addition, Leibowitz & Schlossberg (1981) pointed out that the program developer must recognize the needs and concerns of the particular group who will be participating in the program. They recommended several theories that could be applied by program developers to identify particular groups in organizations. The theories refer to a congruence model of vocational development, a theory of life stages among men, a theory of career stages in organizations, a psychoanalytic theory of managerial types, a theory of roles and theatres, and a theory of perspectives on sex differences. Furthermore, Leibowitz & Schlossberg (1981) suggested using transition models to recognize and categorize target groups in organizations. The transition was defined as an event (such as a job promotion, job loss, a static job) that results in changes in the individual's assumptive world and relationships. From the above stated information, it could be concluded that it is necessary to identify the needs of target groups to make both the needs assessment and the program design as accurate as possible (Zinser, 1988; Niles & Harris-Bowlsbey, 2002; Simonsen, 1997; Miedzinski, et al., 2001).

The Concepts of Needs Assessment and the Procedures for Needs Assessment

The specific needs of individuals in career planning should be understood before a career development program can be implemented. The tasks of needs assessment can help provide information required to customize a career development program, and can

ensure that the important issues and needs that surface are broad enough to warrant extensive intervention (Leibowitz, Farren & Kaye, 1986). Hence, conducting a needs assessment is fundamental to the success of a career development system.

Kaufman defined needs assessment as “the formal process of identifying needs as gaps between current and desired results, placing those needs in priority order based on the cost to meet each need versus the cost for ignoring it, and selecting the most important needs (problems or opportunities) for reduction or elimination” (1995, p.56). Needs assessment is undertaken for the purposes of identifying the discrepancies, examining their nature and causes, and setting priorities for future action. As Witkin and Altschuld (1995) addressed, needs assessment is “a systematic set of procedures undertaken for the purpose of setting priorities and making decisions about program or organizational improvement and allocation of resources. The priorities are based on identified needs” (p. 4).

There are three activities contained in needs assessment: organizational analysis, task analysis, and individual analysis (Brown, 2002; Gordon, 1994; McGehee & Thayer, 1961). Organizational analysis refers to the examination of where training is needed in the organization and under what conditions it should occur. Task analyses are performed to determine the tasks that are involved in performing the jobs that will be the focus of training, through identifying the knowledge, skills, and abilities (KSAs) that are required to perform the tasks in the jobs to be trained. The focus of individual analyses is to identify who should be trained and what kind of training they need. In order to determine the needs for the training, three types of information are collected from the trainee:

demographic background, knowledge of skill components and perceptions of needs (Good, 1996).

In terms of an individual analysis, self-report (including survey and interview) provides one of the ways to solicit the training needs from individuals. Ford and Noe (1987) designed a Need-For-Training Questionnaire for managers and supervisors in an organization for soliciting the training needs by asking the respondents to review a list of skills required in their jobs and to rate themselves on the extent to which they felt they needed training on those skills.

A number of frameworks for conducting needs assessment have been suggested by many researches (Altschuld & Witkin, 2000, Cline & Seibert, 1993, Kaufman, 1987, Hammond, 2001, Harp, 1995, Kaufman & Triner, 1996, Leibowitz, Farren & Kaye, 1986, Leigh, Watkins, Platt & Kaufman, 2000, McClelland, 1992, Steadham, 1980, Witkin & Altschuld, 1995). The frameworks can be categorized into three phases: (1) preassessment, which is to explore the context and environment of the perceived problem in order to identify needs before analyzing them; (2) assessment, in which data gathering is the primary activity; (3) postassessment, in which the major tasks are analysis, clarification, and preliminary prioritization of that which occurred in the second phase. The specific processes for each phase are summarized in the Table 2.3.

Table 2.3 The Specific Steps Involved in Three Phases of Needs Assessment Processes

Phase 1. Preassessment	<ol style="list-style-type: none"> 1. Define the goals of assessment 2. Determine what information to collect 3. Identify the information sources 4. Gain organization commitment 5. Identify the needs assessment and planning partners 6. Select the method or methods to be used in collecting the information
Phase 2. Assessment	<ol style="list-style-type: none"> 1. Determine the appropriate methods 2. Select or develop the instruments 3. Collect needs data 4. Tabulate and analyze the result
Phase 3. Postassessment	<ol style="list-style-type: none"> 1. List identified and documented needs 2. Sort and prioritize each of the identified needs 3. Reconcile disagreements 4. List problems to be resolved and obtain agreement of partners 5. Consider alternative solutions 6. Evaluate needs assessment process 7. Communicate results 8. Implementation plans

Note: These processes are synthesized based on the following studies: Altschuld & Witkin, 2000, Cline & Seibert, 1993, Kaufman, 1987, Hammond, 2001, Harp, 1995, Kaufman & Triner, 1996, Leibowitz, Farren & Kaye, 1986, Leigh, Watkins, Platt & Kaufman, 2000, McClelland, 1992, Steadham, 1980, Witkin & Altschuld, 1995.

Techniques of Needs Assessment

The techniques used for gathering and identifying needs have been discussed by several researchers (Rossett 1987; Leibowitz, et al. 1986; Hammond, 2001; Steadham, 1980; Altschuld & Witkin, 2000; Kaufman & Triner, 1996; and Imel, 1982; Brown, 2002; McClelland, 1994a, 1994b, 1994c, 1994d; Witkin & Altschuld, 1995) and are listed as follows: surveys/questionnaires, interviews, performance appraisals, observations, tests, assessment centers, focus groups, document reviews, advisory committees, and the Delphi method.

The most common techniques used for conducting needs assessment are surveys/questionnaires and interviews. (Leibowitz & Schlossberg, 1981; McClelland, 1994a, 1994b). Hammond (2001) points out that the larger the group, the greater the need is to consider the amount of time involved versus the rate of return. Thus, he suggested that data collection should be restricted to methods such as paper-and-pencil, mail, web-based questionnaires/surveys for large sample sizes. Questionnaires are relatively inexpensive to gather data, can reach a large number of people in a short time, give opportunity for expression with open-ended questions without fear of embarrassment, produce data easily summarized and reported, and possess high reliability and validity (Steadham, 1980; Leibowitz, Farren, & Kaye, 1986; McClelland, 1994a; Brown, 2002). Zinser (1988) in his study associated with needs analysis techniques suggested that the needs that surface could be broad enough to justify extensive intervention if the assessment is conducted among a wide population. Accordingly, in view of the advantages of adapting surveys/questionnaires and considering the large population in the Taiwan Power Company, which employs more than 25,000 individuals, the survey/questionnaire is a desirable approach to determine the employees' needs for organizational career development programs in this study.

The Components of Organizational Career Development

Determination of program activities, interventions, or practices that can be incorporated into the career development system is an essential component to be included in the needs assessment process. A broad review of components associated with organizational career development programs is illustrated in this section in order to incorporate the appropriate lists of activities associated with such programs into the content of the needs assessment in the present study.

According to Russell (1991), organizational interventions that are used in career development programs are defined as “any efforts by organizations to assist individuals in managing their careers and to help organizations meet their goals... These efforts may consist of strategies, policies, or programs, ranging from informal and unstructured to highly formal and structured” (p. 238). Russell further illustrated that the interventions enclosed in the programs should address the internal career or the external career and are designed to meet human resource needs that may influence the career development of employees.

Why are interventions, activities, or practices that are used in organizational career development programs implemented in the organization? In the past two decades, the majority of the reasons for implementing interventions in career development programs lay in the challenges from the changing environment, including changes in economy, technology, organizational structure, society, work force, and individual requirements (Burack & Mathys, 1980; Brown, 1986). In addition to the concerns regarding these changes, Gutteridge, Leibowitz, & Shore (1993), who conducted a survey of 1,000 large

U.S.-based organizations with activities of career development programs in place, found that the primary reasons driving the organizational career development programs were a desire to develop or promote from within, a shortage of promotable talent, and a commitment to career development in the organization. No matter what the diverse reasons are for using interventions of organizational career development programs, it was agreed that developing the programs can help increase employee productivity, prevent job obsolescence and burnout, and improve the quality of employees' work life (Leibowitz & Schlossberg, 1981; Chen, Chang, & Yeh, 2004; Rita & Kirschenbaum, 1999). The interventions or activities in career development programs were offered for the expectation of matching the individual's needs and interests with organizational opportunities and requirements. Practices and activities of career development programs that are selected and utilized by human resource development practitioners differ from a minor few to multiple possibilities with an intention to address the growth of employees' careers and ultimately the growth of the organization (Graham & Nafukho, 2004). In the following section, a wide variation of proposed specific interventions, activities, or practices in career development programs that can be utilized by organizations and individuals, were investigated in the relevant literature.

Schein (1978) provided a model to illustrate comprehensive linking of individual and organizational needs. In his model, he listed several activities designed to align the individual's needs with organizational requirements. The activities included job analysis, job design, job assignment, coaching, performance appraisal, promotions, job changes, training and development options, career counseling, career planning, continuing

education, job enrichment, job rotation, retirement planning, human resource inventorying, and job postings.

Griffith (1980) reported on the type of career development activities provided in 118 Fortune 500 companies. He found that some of the activities in career development programs were primarily job-related, while others were not directly job-related. The most popular activities that were implemented included support for external training, alcohol and drug abuse counseling, retirement planning, support groups for women and minorities, and outplacement counseling.

Gutteridge (1986, p. 61) identified 24 activities that could be incorporated within organizational career development programs. The 24 organizational career development activities were further categorized into six distinct sets of tools:

1. Self-assessment tools, including career planning workshops, career workbooks, and pre-retirement workshops.
2. Individual counseling, from supervisors, personnel staff, professional counselors, supervisors or line managers, or outplacement companies.
3. Internal labor market information/placement exchanges consisting of job postings, skills inventories, career resource centers, career ladders, career path planning, and other career communication formats.
4. Organizational potential assessment processes, including assessment centers, promotability forecasts, replacement/succession planning, and psychological testing programs.
5. Human resource systems, including skills inventories and human resource planning

systems.

6. Developmental programs, including job rotations, in-house HRD programs, external workshops, tuition reimbursement/educational assistance programs, supervisor training in career counseling, dual-career programs, and mentoring systems.

In Russell's (1991) review of the career development literature in the last two decades, she identified 35 different interventions of organizational career development programs that were commonly used by organizations in the United States. She modified Gutteridge's (1986) taxonomy of career development programs, and then formulated her own 7 categories of career development programs for the 35 career development interventions. The categories were as follows (Russell, 1991, p. 244):

1. Self-assessment tools, including career workbooks, and career planning workshops.
2. Individual counseling.
3. Information services, including job-posting systems, skills inventories, career ladders and paths, and career resource centers.
4. Organizational assessment programs, including assessment centers, psychological testing, promotability forecasts, and succession planning.
5. Developmental programs, including assessment centers, job rotation programs, tuition refund plans, internal training programs, and mentoring programs.
6. Programs to address issues confronting employees at various career stages: for early-career issues, including anticipatory socialization programs, realistic recruitment, and employee orientation programs; for middle-career issues, including job rotation,

downward moves, and developmental programs; for late-career issues, including workshops on older worker issues, pre-retirement programs, incentives for early retirement, and flexible work patterns.

7. Career programs for special target groups, including fast track or high-potential employees, terminated employees (outplacement programs), supervisors, women and minority employees, and programs to assist employed spouses and parents (policies on hiring couples, work-family programs, job-sharing programs, transfers, travel, and other policies, flexible work arrangements, paid and unpaid leave, and child care services).

Russell concluded that a carefully planned, systematic program is desirable for fulfillment in a meaning fashion.

Leibowitz, Farren, & Kaye (1986) separated employee interventions into three broad categories, including group activities, support-oriented activities, and self-directed activities. Group activities consisted of the interventions (e.g., workshops and videos) by which individuals can learn about and plan for career development by working in groups. Support-oriented activities contained the interventions by which individuals are assisted by others in planning and implementing their career development (e.g., professional counseling, counseling/coaching by supervisors, etc.). Career development activities that can be undertaken by an individual working alone were categorized into the self-directed activities category (e.g., workbooks and computer-assisted programs). Moreover, Leibowitz, et al. pointed out that existing human structures can be incorporated into and support the career development system through careful review and redesign. Human

resource structures can be seen in four general groupings that comprise career development programs (Leibowitz, Farren, & Kaye, 1986, p. 137): (1) programs linked to individual information and planning, including performance appraisal and career pathing; (2) programs linked to job acquisition and movement, including job descriptions, job postings, and recruitment-transfer-promotion policies; (3) programs linked to development and reward, including training, development, and education plus compensation and benefits; and (4) programs linked to organizational information and planning, including strategic planning, forecasting, succession planning, and skills inventories. In addition to the current human resource structure, Leibowitz et al. proposed new structures which can be added or designed for the career development programs, including job rotation or work experience programs, project assignment program posting systems, utilization committees, competency assessments, career fairs, future forums, career advisers or functional representatives, and videotapes.

Another list of organizational career development practices was provided by Gutteridge, Leibowitz, & Shore (1993) in their study of career development in organizations in the United States. Their study focused on the top 1,000 largest corporations in the United States. Their list of organizational career development practices consisted of six categories and were comprised as follows (Gutteridge, Leibowitz, & Shore, 1993, p.4):

1. Employment self-assessment tools:

- Career planning workshops

- Career workshops (stand alone)

Pre-retirement workshops

Computer software

2. Organizational potential assessment process:

Promotability forecasts

Psychological testing

Assessment centers

Interview process

Job assignment

3. Internal labor market active management:

Career information handbooks

Career ladders or dual-career ladder

Career resource center

Other career information format or system

4. Individual counseling or career discussion with:

Supervisor or line manager

Senior career adviser

Personnel staff

Specialised counselor: internal/external

5. Job matching systems:

Informal canvassing

Job posting

Skills inventories or skills audit

Replacement or succession planning

Staffing committee

Internal placement system

6. Developmental programs:

Job enrichment or job design

Job rotation

In-house training and development programs

External seminars or workshops

Tuition reimbursement

Supervisor training in career discussion

Dual-career couple programs

Mentoring system

Employee orientation program

Being concerned with the fact that most organizational career development programs are based on archaic approaches which bear with the assumption of old-style hierarchical frameworks and dated technology, Baruch (1999) outlined a comprehensive portfolio of career planning and management practices which can be conducted by organizations to plan and manage employees' careers. He indicated that with an attempt to bring together a holistic picture of career planning and management from the organizational perspective, each career practice is referred to, and associated with the way it can be utilized by organizations in the future. The practices identified by Baruch are further classified according to two dimensions: sophistication and involvement. The

career planning and management practices valid for the 2000s are (Baruch, 1999, p.435-436):

Basic (low on sophistication, medium on involvement)

- Postings regarding internal job openings
- Formal education as part of career development
- Lateral moves to create cross-functional experiences
- Retirement preparation programs

Formal (medium on sophistication, low on involvement)

- Booklets and/or pamphlets on career issues
- Dual ladder (parallel hierarchy for professional staff)

Active management (medium on sophistication, medium on involvement)

- Induction
- Assessment centers
- Mentoring
- Career workshops

Active planning (medium on sophistication, high on involvement)

- Performance appraisal as a basis for career planning
- Career counseling by direct supervisor
- Career counseling by HR Department
- Succession planning

Multi-directional (high on sophistication, medium on involvement)

- 360° performance appraisal as a basis for career planning
- Special programs for ethnic minorities, women, disabled, dual career couples etc.
- Special programs for ex-patriates and re-patriates
- Special programs for high flyers

New career planning and management for 200s

- Building psychological contracts
- Secondments

Diverse interventions, activities, or practices in organizational career development programs have been proposed and identified for matching the needs of individuals and organizations. However, Schien (1986) pointed out that career development specialists tend to push techniques, programs, and normative solutions to career development programs instead of addressing how such techniques can be redesigned or utilized to match the needs of employees and organizations. Interventions, activities, or practices in organizational career development programs targeted to specific needs and target groups is demanded in order to be incorporated into a comprehensive program. Hence, needs assessment conducted to identify the specific needs of employees and organizations is highly recommended.

Career Development in Taiwan

In recent years, career development and management has gained much attention in Taiwan. The Westernized concept of seeing a life span as emphasizing change, planning, and individual differences has had a considerable impact on developing the concept of career, since the concept suits with the modern opportunities of rapid economic growth and social change in Taiwan (Chang, 2002). Certain pilot scholars in the field of career development in Taiwan, who were educated in the U.S., brought the concept of career from the U.S. and spread the concept to higher education institutions and government in Taiwan. Lin (1987), one of the first scholars in career development in Taiwan, defined career as “what a person is doing throughout his or her life tasks and roles, while also being involved in other non-job-related activities.” This definition is similar to the concept of career defined by American career development scholars.

Despite the fact that career development gradually gained attention in Taiwan, most career development researches were implemented in a school context rather than in an organizational context. As the CEO of the Taiwan Semiconductor Manufacturing Company said, many individuals discuss career planning but it is not taken seriously by human resource people (Chang, 1999b). The focus of career context needs to center around adult and employee career development outside the school setting by helping an employee with adjustment problems, quality of life, midcareer changes, leisure activities, dual career planning, and increased numbers of elderly in the workforce is strongly demanded (Huang, 1993; Jo, 1993; Ku, 1990; Chang, 2002).

Career management and career development programs established in Taiwanese organizations are used to enhance human resources (Chang & Chang, 1995). Several large domestic companies have offered career development programs (Chang, 2002; Peng, 1995). These programs, either formal or informal, include new employee orientation training, individual career guidance, psychological testing, job rotation, workshops, skill training, job posting, and performance review. However, the effectiveness of these programs hasn't been evaluated (Chang, 2002). In terms of large international companies in Taiwan, career development plans, having a strong Western bias, were developed by their home offices. The career development programs in these companies are associated with development of effective management.

Medium and small enterprises, including family businesses, are the majority and the typical type of enterprise in Taiwan. However, these small and medium enterprises lacked formal authorization and long-term planning, especially for career development (Peng, 1995).

Although the implementation of career development programs in organizations in Taiwan is not as prevalent as in the United States, the study of benefits resulting from carrying out career development programs in Taiwanese companies can be found in some literature. To investigate the relationship between employees' career development and organizational commitment, Shih (1990) conducted a survey of the manufacturing firms in Taiwan. The results indicated that there is a significant positive relationship between employees' career development and their organizational commitment. Shih (1990) concluded from his survey of the top 500 manufacturing firms in Taiwan that

companies practicing career planning have a relatively low and stable turnover rate. Chen and his associates (2004) conducted a study to define the factors influencing Research & Development personnel's job satisfaction levels from a perspective of the gap between career development programs and career needs in Taiwan. The results revealed that the three kinds of gaps (career goals, career tasks, and career challenges) between career development programs and career needs can serve as the predictors of job satisfaction. The larger the gap, the lower the level of job satisfaction among R&D personnel. The researchers reached a conclusion that organizations that cannot offer career development programs that satisfy the career needs of the employees will produce widening gaps.

The career development needs among the Taiwanese workforce were explored by several researchers. Tsai (1997) examined the relationship between managers' career development needs and career development programs provided for managers in the enterprises. From the survey responses of 286 managers, Tsai found that among 18 different career development programs, "training program", "succession planning", "retirement counseling", and "career guidance and counseling" were perceived as the highest needs among the managers. A discrepancy between managers' career development needs and existing career development programs in the company was substantiated. In other words, the concerns and emphases of existing career development programs provided by the companies did not match the managers' career development needs, especially the needs for "succession planning", "career guidance and counseling", and "retirement counseling". Tsai concluded that efficient and effective career

development programs need to be established and should be based on satisfying the managers' career needs. Not only can the career development programs be accepted by managers, but the needs of individuals and companies can be accommodated as well. Tsai (1994) undertook a survey of 233 employees in six types of industries to investigate organizational culture, employees' career anchors and the correlations with career needs and job satisfaction. The employees highest perceived needs were found to be "self assessment", "career information", "career path", and "training and development". The results that employees' career development needs varied with their occupational types and educational levels were shown. Tsai concluded that employees expressed a strong desire for career development programs, thus, career development programs that fit the employees' career development needs should be provided. Since employees' career development needs varied in terms of occupational type, gender, age, and educational level, assessing employees' need and characteristics which are coordinated with organizational strategies in order to design the career development programs were strongly recommended (Tsai, 1994).

The concept of career development in Taiwan is deeply influenced by the United States. The career development in U.S. organizations is more prevalent than career development in Taiwanese organizations. In the United States, numerous career development studies and researches are focused on the organizational context. However, most career development studies in Taiwan are still focused on the school context. The purposes for implementing the career development programs in organizations are also

different between the two countries. A comparison of career development characteristics in the two countries is given in Table 2.4.

Table 2.4. A Comparison of Career Development in the U.S. and Taiwan

Career Development Characteristics	United States	Taiwan
Definition of career	Career is defined as activities not only involving individual work or occupation but also involving individual lifestyle, which mean work and leisure activities (McDaniels, 1978).	What a person is doing throughout his or her life tasks and roles, while also being involved in other non-job-related activities (Lin, 1987).
Research focusing	School context and organizational context	School context
The prevalence of career development in organizations	Majority of the large companies have career development programs	Available in few large domestic companies and large international companies. Seldom found in the family enterprises
Inputs to career development in organization	Developing and promoting from within Cultivating the promotable talent realizing the organizational commitment to career development.	Enhancing human resources Developing effective management
Career development programs used	Variety of programs have been offered	Restricted offerings, such as new employee orientation training, individual career guidance, psychological testing, job rotation, workshops, skill training, job posting, and performance review.
Effectiveness of career development practices	Referred effectiveness of the programs indicated by tuition reimbursement, in-house training and development programs and job posting were perceived effectiveness.	The effectiveness of these programs hasn't been evaluated.

Summary

A review and synthesis of the principle concept of an organizational career development system was the beginning of this chapter. The planning models of career development and needs assessment in organizations were discussed. A review of literature specifically associated with interventions, practices, or activities in organizational career development programs was presented. Finally, career development and its relevant studies in Taiwan were introduced. The rationale and theoretical supports for this study have been established by presenting a review of the previous research and literature pertinent to the study.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to investigate white-collar employees' perceptions of career development program needs in the TPC. A needs assessment was conducted for planning future career development programs for employees in the company. Special issues were addressed, such as (a) identifying the white-collar employee's perceptions of career development program needs in terms of different job functions and job roles; (b) exploring the underlying constructs among present and future positions in regard to the employee's perceptions of career development needs with respect to the career development programs; (c) investigating the differences among perceptions of career development program needs in terms of different job functions and job roles; (d) uncovering whether or not differences among career development needs perceptions are related to differences among respondents who differ in terms of demographics, including gender, age, education; and (e) discovering if individuals who differ in terms of different job functions and job roles have different opinions on whether the selected career development programs were already provided or should be provided by the company. The methodology of this research is described in the following order: the setting, population, sample, procedures, questionnaire, validity, reliability, and data analyses.

The Setting

The Taiwan Power Company (TPC), established in 1948, is the agency responsible for developing, generating, supplying, and marketing electric power for the majority of the Taiwan area. The government owns 90% of its stock, and 10% is owned by non-governmental institutions. There are 26 departments in the TPC, including its headquarters in the city of Taipei and nearly 80 units distributed over the Taiwan area.

The total energy production in 2000 reached 156.511 million Killo Watt Hours (KWH), of which 36,996 million KWH (23.6%) was nuclear, 8,843 million KWH (5.7%) was hydro, and 110,672 million KWH (70.7%) was thermal. In addition, nearly 11.7 % of the whole production, 18,355 million KWH, was purchased from Independent Power Plants.

The mission of the TPC is to offer diverse services to satisfy the needs of customers, to promote the nation's competitiveness, and to secure its shareholders and employees' reasonable rights. Its vision is to become the leader of the power industry and the most reputable enterprise in Taiwan. However, electrical power operation in Taiwan is moving toward liberalization and privatization due to the influence of the global economic trend. Keeping its finger on the pulse of the times, the TPC, while complying with government policies, will need to make necessary adjustments in light of new challenges.

Population

The TPC's operations require a large, talented professional workforce and in a

summary of the year 2001 included 14,880 white-collar employees and over 12,760 blue-collar employees. In order to capture the career development program needs of all the employees, a needs assessment of white and blue-collar employee is needed. Due to logistical reasons, only the white-collar employees of the TPC were studied. Therefore, the population of this study was 13,860 white-collar employees (1,020 unclassified white-collar employees were not included in the study, so they were removed from the total 14,880 white-collar employees). The 13,860 white-collar employees were further classified in terms of job function, job role, and age, based on the statistics provided by the TPC personnel department. The categories of Job Function consist of Management, Business/Sales, and Technology (including electric machinery and machinery). The categories of Job Role consist of Employee, Ling-Manager, and Upper-Manager. General and demographic information about these employees was gathered from computer records at the TPC personnel office.

In terms of Job Function, a summary of the population is presented in Table 3.1. Just over 21% of the white-collar employees were in the Management category. Slightly more than 17% of the white-collar employees were in the Business/Sales category, and a little more than 60% of the white-collar employees were in the Technology category.

Table 3.1 Number and Percentage of Surveyed White Collar Employees According to Job Function (Dec. 2001)

Job Categorization	Number	Percentage
Technology	8,409	60.67
Management	3,020	21.79
Business/Sales	2,431	17.54
Total	13,860	100.00

In terms of Job Function and Job Role, a summary of the population is presented in Table 3.2. An examination of Table 3.2 reveals that Upper-Managers, including top-managers and mid-managers, comprised over 10% of the population and Line-Managers represented more than 26% of the population. Employees made up nearly 63% of the population (see Table 3.2).

Table 3.2 Number and Percentage of Surveyed White Collar Employees According to Job Role and Job Function (Dec. 2001)

Job Role	Job Function							
	Technology		Management		Business/Sales		Total	
	N	%	N	%	N	%	N	%
Upper-manager	916	6.61	430	3.10	79	0.57	1,425	10.28
Line-manager	2,564	18.50	640	4.62	496	3.58	3,700	26.70
Employee	4,929	35.56	1,950	14.07	1,856	13.39	8,735	63.02
Total	8,409	60.67	3,020	21.79	2,431	17.54	13,860	100.00

In terms of age distribution by Job Function, a summary of population is displayed in Table 3.3. Observing the table, almost thirty-nine percent of the employees (n= 4,550) were between the ages of 40 and 49; 35.34% (n= 4,128) were between ages 50 and 59; 13.53% (n= 1,580) were between ages 30 and 39; 7.97% (n= 931) were above the ages of 60; and 4.20% (n= 491) were between the ages 20 and 29.

Table 3.3 Number and Percentage of Surveyed White Collar Employees According to Age and Job Function (Dec. 2001)

Age	Job Function			Total	Percentage
	Technology	Management	Business/Sales		
20~29	418	52	21	491	4.20
30~39	1,265	190	125	1,580	13.53
40~49	3,422	684	444	4,550	38.96
50~59	2,775	795	558	4,128	35.34
60 and above	506	265	160	931	7.97
Total	8,386	1,308	1,986	11,680	100.00

Sample

The general and demographic information about the employees in the TPC was gathered from the computer records at the personnel office in December, 2001. The researcher conducted a stratified random sampling (Table 3.4) based on Job Function (Technology, Management, and Business/Sales) and Job Role (Employee, Line-Manager, and Upper-Manager) defined by the TPC's personnel department.

Table 3.4. The Sample for the Study (1636 white-collar employees)

Job Role	Job Function							
	Technology		Management		Business/Sales		Total	
	n	%	n	%	n	%	n	%
Upper-manager	106	6.61	50	3.10	45*	0.57	201	10.28
Line-manager	296	18.50	74	4.62	57	3.58	427	26.70
Employee	569	35.56	225	14.07	214	13.39	1008	63.02
Total	915	61.67	349	21.79	316	17.54	1636	100.00

Note: The sample number of the upper-managers from the business/sales category was over-represented because only 7 upper-managers resulted from the stratified sampling. Therefore, 38 additional cases plus the original seven cases were included in the sample.

Data were collected by means of interoffice mail and human resource representatives at each division who distributed the survey to 1636 white-collar employees in the company. Between July and August of 2002, 1351 surveys were returned for an overall response rate of 82.5%. Confidentiality was considered necessary to protect the identity of the subjects, to ensure honesty in responding, and to obtain a higher response rate. Table 3.5 contains the number and percentage of respondents in the final sample in terms of Job Function and Job Role.

Table 3.5. Number and Percentage of Respondents According to Job Function and Job Role

Job Role	Job Function						Total	
	Technology		Management		Business/Sales			
	n	%	n	%	n	%	n	%
Upper-manager	72	5.4	70	5.2	25	1.9	167	12.5
Line-manager	203	15.2	115	8.6	43	3.2	361	27.1
Employee	422	31.7	177	13.3	105	15.4	804	60.4
Total	697	52.3	362	27.2	273	20.7	1332	100.0

The final sample consisted of 12.5 % Upper-Managers (n=167), 27.1% Line-Managers (n=364), and 60.4% Employees (n=818). Additionally, the sample consisted of the following breakdown by classification: Technology 52.3% (n=697), Management 27.2% (n=362), and Business/Sales 20.7 (n=273).

Questionnaire

A questionnaire was developed by the researcher to determine the perceived career development program needs of the white-collar employees in the TPC. The original questionnaire, entitled “Career Development Needs Assessment Survey” (Appendix A), is described in this section. The questionnaire was used to request three types of information: personal data, career development program needs for the current and future position, and the respondent’s perception of whether the company was providing, or should provide, such career development programs.

1. The Personal Data Sheet

The personal data sheet was constructed for requesting the demographic information of the subjects. It included (a) present organizational unit, (b) present grade, (c) position title, (d) present position, (e) service years in the TPC, (f) years in the current position, (g) educational level, (h) gender, (i) marital status, (j) managerial status, (k) age, and (l) a single item related to job and career satisfaction.

2. The Career Development Needs Assessment Survey

The questionnaire was designed to request the respondents’ perceptions of career development program needs based on a list of career development programs. Originally, the questionnaire contained 36 programs, which were modified from prior relevant studies (Russell, 1991; Leibowitz, Farren, & Kaye, 1986).

Thirty-three of the original 36 programs listed in this questionnaire were adapted from the Russell study (1991). In Russell’s review of the career development literature in the last two decades, 35 different organizational career development programs that

were commonly used by organizations in the United States were identified. She modified Gutteridge's (1986) taxonomy of career development programs and then formulated her own seven categories of career development programs. They were:

1. Self-assessment tools;
2. Individual counseling;
3. Information services;
4. Organizational assessment programs;
5. Developmental programs;
6. Programs to address issues confronting employees at various career stages;
7. Career programs for special target groups.

In the Hoffman study (1997), a factor analysis was conducted to examine the validity and reliability of 32 programs which were adapted from Russell's (1991) career development programs. The factor analysis resulted in seven factors, which accounted for approximately 61% of the total variance. Hence, the 32 programs were found to have appropriate construct validity. Additionally, three other career development programs which were adapted from the Leibowitz, Farren, & Kaye study (1986), which were not specified by Russell (1991) were included in this questionnaire.

In this questionnaire, all items were clearly defined and listed in order to minimize any possible ambiguity concerning any specific item. Each item (program) was defined according to Hoffman (1997), Leibowitz et al. (1986), Cummings & Worley (2001), Russell (1991), and Baruch (1999). The career development programs and their definitions as listed in the original questionnaire are presented in Table 3.6.

Table 3.6 The 36 Career Development Programs and the Descriptions Listed in the Original Questionnaire

	Program	Description
1	Training to perform the current job	Specific training to teach employees how to perform the jobs for which they were hired
2	Career workbooks	Workbooks contained questions and exercises that allow employees to identify their strengths and weaknesses, identify job opportunities, and identify steps for reaching career goals
3	Voluntary career planning workshops	Workshops in which employees can receive feedback from others regarding their career plans and identify their future opportunities not only just general development.
4	Individualized career counseling	One-on-one sessions with an expert career counselor or the direct manager regarding to individual interests, goals, performance, and career plan.
5	Skills inventories	Files of data on employees, skills, abilities, experiences, and education that can be used by organizations to offer training for matching the needed skills for the jobs.
6	Specific career ladders	Explanation of career plans for individuals in different positions with respect to a final goal, intermediate steps, and timetables for reaching the goal
7	A career resource center	A company owned center or library that encloses career development materials including reference books, learning guides, and self-study tapes.
8	A job posting system	A method, such as bulletin boards, newsletters, or other company's publications, for providing information about available job openings positions.
9	Assessment centers	A center in which participants are evaluated by trained raters through performing in a variety of situational exercise such as tests, interviews, group discussions, and simulation, and receive detailed developmental feedback on their strengths and weaknesses.
10	Psychological testing for vocational interests and work attitudes	Diagnostic tests and inventories that would help individuals identify their career needs and preferences
11	Promotability forecasts	Forecasts used to make early identifications of individuals with particular high career potential
12	Succession planning	A process in which senior executives periodically appraise their top level executives to determine possible replacement for each senior position.

Table 3.6 (continued)

	Program	Description
13	Job rotation programs	Program that allow employees to develop a broader base of skills or the experience and visibility needed for career advancement by learning a variety of job duties by periodically lateral moves.
14	Tuition refund programs	Programs that refund employees' college tuition costs for job-related courses.
15	Internal training programs*	Training programs provided by the company with a wide variety of topics (e.g. technical skills, professional skills, management development) for all employees
16	Mentoring programs	Programs that establish a close link between junior and senior colleagues within a company to provide both career outcomes.
17	Internships and cooperative education programs*	Programs in which students are given opportunities to work in a company and learn how well they are suited to the particular job or company
18	New employee orientation programs*	Programs which offer new employees with overviews of company's cultural, goals, values and benefits.
19	Realistic job previews	Program which provides employees with realistic, balanced, accurate views of the organization and the job
20	Downward moves or salary reduction	Demotions that allow employees to keep their jobs, cut back their work hours, reducing their salaries, or move back to jobs they enjoy more in order to avoid being lay off.
21	Midcareer development programs	Programs, including continuing education programs, sabbatical leaves, and university executive programs, which intend to overcome obsolescence and career plateauing.
22	Workshops on older worker issues	Programs to assist supervisors increase their awareness of the psychological issues surrounding older workers, laws about older workers, and stereotypes and realities of the aging process.
23	Preretirement counseling workshops	Programs designed to facilitate preretirees understanding of the life and career concerns for preparation of retirement
24	Incentives for early retirement	Positive incentives to encourage older employees to retire early in order to avoid having to terminate individuals who are poorly performing.

Table 3.6 (continued)

	Program	Description
25	Flexible work schedules	Options for employees to do part-time work, seasonal work, job sharing, and work-at-home
26	Special development programs for “fast track” or “high-potential” employees	Programs for recruiting and selecting employees to be given rapid and intensive developmental opportunities and wider options for fast development.
27	Career counseling training for supervisors	Teaching supervisors how to counsel their employees on career development and career planning options and integrate career planning with the performance appraisal review.
28	Outplacement programs for terminated employees	Programs designed to assist terminated employees in making career transitions to new employment, especially for those laid off by reduction in force efforts.
29	Special programs for women and minorities	Programs developed to promote the career development of women and minorities within the company.
30	Policies that are designed to better accommodate the needs of dual-career couples	Polices regarding to transfers, relocation, travel, recruitment, leave, promotions, scheduling hours, benefits.
31	Paid and unpaid parental leave	Maternity leave, paternity leave, and sick leave for family illnesses
32	Dependent care services	Services including on or near-site child care, dependent care directories, or child care subsidies
33	Job-sharing programs	Opportunities for two individuals or a couple to split the work and responsibilities to one full-time job
34	Work-family programs	Programs that help employees manage their work-family role conflict and coping strategies.
35	Future forums	Management panels for sharing future trends and issues in the industry, environment, and company that might influence career choice and options with employees.
36	Career advisers or functional representatives	Providing representatives from each division in the company to employees on job requirements and opportunities within their areas.

Note: The items' descriptions are modified from Russell (1991, p. 243-271), Hoffman (1997, p. 168-170), Baruch (1999, 437-447), Leibowitz et al. (1986, p. 29, 158-159), and Cummings & Worley (2001, p. 223-226).

** These programs were removed from the final version of the questionnaire according to experts' suggestions.*

Respondents were asked to check their responses in two columns of the instrument. The two columns asked the participants to select a number on a Likert five point scale of 1 (strongly no need) to 5 (strongly need) for their perception regarding how valuable these career development programs would be for them in terms of their current and future positions, respectively.

3. Provision of Career Development Programs

This scale which was adopted from Corradino's career development needs assessment measurement method (1986) was employed in this section. Corradino developed the measurement method to assess the career development needs of civilian engineers in a U.S. organization. The present questionnaire scale contained two columns related to the respondents' perceptions of whether the career development programs are provided or should be provided by the company, respectively. In each column, a yes or no response was requested. In the first column, respondents were asked to check whether they believed the selected career development program was provided by the company. In the second column, the respondents were asked if they thought the company should provide the specific career development program.

Procedures

Six steps were taken to establish the validity and reliability of the instrument and collect the data for the study. The steps included (a) securing the permission of the relevant authorities, (b) submitting the questionnaire to a panel of judges, (c) interviewing with a top manager and two human resource personnel regarding the

intention of the study and questionnaire, (d) inviting seven middle managers to review the questionnaire and present the revised version based on their critiques and suggestions, (e) conducting a pilot test with 36 employees representing the three different job functions (Technology, Management, and Business/Sales) using the questionnaire refined in the previous steps and the final revision according to the opinions and suggestions of the 36 employees, and (f) administering the final instrument to the target sample. Each of the six steps is described below.

Permission for conducting this study in the TPC was granted by the personnel department in the TPC (Appendix B) and from the Institutional Review Board-Human Subjects in Research, Texas A&M University. The major content areas and the items of the questionnaire were submitted to a panel of U.S. judges. The four judges were university faculty members with specializations in human resource development, career development, and adult development. They evaluated the appropriateness and suitability of the items for the content area and written descriptions of each item.

An informal interview was first conducted with one of the vice presidents of the TPC, who was in charge of the human resource department. The vice president had at least 20 years of experience as a human resources executive. The purpose of the interview was to identify the current situation of the company, and verify and consult about the suggestions regarding the study and the instrument. A second interview was conducted with two human resource professionals in the TPC. These human resource professionals were responsible for conducting and designing training programs for the TPC and they had extensive knowledge of company practices and procedures. They

compared the proposed list of career development programs with the programs currently or previously available in the TPC, and then determined the potential career development programs that could be practiced in the TPC. The researcher then held a series of meetings with the two professionals in which the proposed questionnaire items were critiqued. The procedure of the iterative process was as follows: the professionals were given the list of proposed items, the professionals critiqued the items, followed by a discussion of the items. The researcher then re-wrote the items as discussed, gave the professionals a revised list of the questionnaire items and the process began again.

The initial revised questionnaire based on the previous processes was then administered to 7 middle managers. The 7 middle managers (Appendix C), with more than ten years working experience in the TPC and representing the different departments in the company, were asked to review the 36 career development programs and the description of each program. According to their opinions, the 36 programs in the questionnaire were reduced to 33 items and the questionnaire was revised². A formal presentation to the 7 middle managers and human resource professionals was performed in order to obtain their final agreement and additional comments.

². Three items were removed from the questionnaire due to the managers' concern that the company already provided the programs or the program was not necessary to be provided in the company.

The preliminary 33 item questionnaire was pilot tested on 36 employees representing each of the three categories of job functions in the company. The purpose of the pilot study was to examine whether there were any ambiguous or poorly worded questions and to make sure that the questions were relevant. Minor revisions were made based on comments and suggestions from the employees in the company who had been administered the questionnaire. The final questionnaire contained 33 items with the scale combining two subscales measuring the degree of the needs of the career development programs regarding the respondent's current position and future position, and inquiring the respondents' perceptions of whether the career development programs are provided or should be provided by the company. A comparison between the original and the final content in terms of number of items and item descriptions is portrayed in Table 3.7.

The questionnaire was distributed anonymously either directly or through interoffice mail. The first page of the questionnaire was a cover letter (Appendix A) which included an expression of appreciation for the time and effort invested in filling out the questionnaire, assurance of respondents' anonymity, and the importance of the study.

Table 3.7 A Comparison Between the Original and the Final Content of Questionnaire

Original Content		Final Content	
Program	Description	Program	Description
1	Training to perform the current job	Specific training to teach employees how to perform the jobs for which they were hired	On-the job training/ internal training
2	Career workbooks	Workbooks contained questions and exercises that allow employees to identify their strengths and weaknesses, identify job opportunities, and identify steps for reaching career goals	Career workbooks Help employees identify their strengths, weaknesses, job opportunities and assist employees in determining career goals and setting up the steps to reach the career goals.
3	Voluntary career planning workshops	Workshops in which employees can receive feedback from others regarding their career plans and identify their future opportunities not only just general development.	Career planning workshops Help employees identify how to prepare and realize individual career strategies, and further establish an actual career plan through the activities of group learning and discussion
4	Individualized career counseling	One-on-one sessions with an expert career counselor or the direct manager regarding to individual interests, goals, performance, and career plan.	Employee career counseling
5	Skills inventories	Files of data on employees, skills, abilities, experiences, and education that can be used by organizations to offer training for matching the needed skills for the jobs.	Employees' service record Record employees' individual data, including experiences, educational level and professional specialties, for using by employer to assign the appropriate positions based on employees' skills.

Table 3.7 (continued)

Original Content		Final Content		
Program	Description	Program	Description	
6	Specific career ladders	Explanation of career plans for individuals in different positions with respect to a final goal, intermediate steps, and timetables for reaching the goal	Employees' career paths design	Provide individual career path design according employees' different positions, career goals, and time schedule
7	A career resource center	A company owned center or library that encloses career development materials including reference books, learning guides, and self-study tapes.	A career resource center	Provide materials such as books, magazines, video media relevant to career development
8	A job posting system	A method, such as bulletin boards, newsletters, or other company's publications, for providing information about available job openings positions.	A job posting system	Announce job opportunities inside or outside the company
9	Assessment centers	A center in which participants are evaluated by trained raters through performing in a variety of situational exercise such as tests, interviews, group discussions, and simulation, and receive detailed developmental feedback on their strengths and weaknesses.	Career simulation & assessment centers	conduct employee evaluation and simulation activities, including tests, interviews, group discussions, in order to evaluate employees' strengths , weaknesses and their career orientation.
10	Psychological testing for vocational interests and work attitudes	Diagnostic tests and inventories that would help individuals identify their career needs and preferences	Psychological testing for vocational interests and work attitudes	Help employees identify their career needs and preferences.

Table 3.7 (continued)

Original Content		Final Content	
Program	Description	Program	Description
11 Promotability forecasts	Forecasts used to make early identifications of individuals with particular high career potential	Promotability forecasts	Conducted by managers to identify employees with high career potential
12 Succession planning	A process in which senior executives periodically appraise their top level executives to determine possible replacement for each senior position.	Succession planning	Appraise middle managers' leadership abilities in order to assessing their ability to replace those in the senior positions.
13 Job rotation programs	Program that allow employees to develop a broader base of skills or the experience and visibility needed for career advancement by learning a variety of job duties by periodically lateral moves.	Job rotation programs	
14 Tuition refund programs	Programs that refund employees' college tuition costs for job-related courses.	Tuition refund programs	Provide financial support for employees' tuition for job-related courses
15 Mentoring programs	Programs that establish a close link between junior and senior colleagues within a company to provide both career outcomes.	Mentoring programs	Senior employees play the teacher role to advise junior employees for improving relationships between junior and senior employees
16 Realistic job previews	Program which provides employees with realistic, balanced, accurate views of the organization and the job	Realistic job previews and introduction of company	Provide employees actual and correct job contents and accurate views of the company.

Table 3.7 (continued)

Original Content		Final Content	
Program	Description	Program	Description
17 Downward moves or reducing salaries	Demotions that allow employees to keep their jobs, cut back their work hours, reducing their salaries, or move back to jobs they enjoy more in order to avoid being lay off.	Salary reduction	In order to cope with reduction in staffing levels, employees can choose between reducing their salaries or reducing their work hours in order to avoid being lay off.
18 Midcareer development programs	Programs, including continuing education programs, sabbatical leaves, and university executive programs, which intend to overcome obsolescence and career plateauing.	Midcareer development programs	Provide continuing education programs or sabbatical leaves in order to help employees overcome career plateau and improve any dated skills.
19 Workshops on older worker issues	Programs to assist supervisors increase their awareness of the psychological issues surrounding older workers, laws about older workers, and stereotypes and realities of the aging process.	Supervisors workshops on older worker issues	To assist supervisors in being aware of older workers' psychological, physical and work laws issues
20 Preretirement counseling workshops	Programs designed to facilitate preretirees understanding of the life and career concerns for preparation of retirement	Preretirement counseling workshops	Facilitate preretirees' life and their career adjustment.
21 Incentives for early retirement	Positive incentives to encourage older employees to retire early in order to avoid having to terminate individuals who are poorly performing.	Incentives for early retirement	

Table 3.7 (continued)

Original Content		Final Content	
Program	Description	Program	Description
22 Flexible work schedules	Options for employees to do part-time work, seasonal work, job sharing, and work-at-home	Flexible work schedules	Offer opportunities for part-time work, job sharing, seasonal work, and work-at-home
23 Special development programs for “fast track” or “high-potential” employees	Programs for recruiting and selecting employees to be given rapid and intensive developmental opportunities and wider options for fast development.	Special development programs for “fast track” or “high-potential” employees	Recruiting and selecting high-potential employees to provide them fast developmental opportunities.
24 Career counseling training for supervisors	Teaching supervisors how to counsel their employees on career development and career planning options and integrate career planning with the performance appraisal review.	Career counseling training for supervisors	Provide training to supervisors on how to counsel their employees on career development.
25 Outplacement programs for terminated employees	Programs designed to assist terminated employees in making career transitions to new employment, especially for those laid off by reduction in force efforts.	Outplacement programs for terminated employees	Assist terminated employees in job-seeking counseling and career adjustment services.
26 Special programs for women and minorities	Programs developed to promote the career development of women and minorities within the company.	Career programs for women and minorities	Provide career development program for women and minorities within the company
27 Policies that are designed to better accommodate the needs of dual-career couples	Polices regarding to transfers, relocation, travel, recruitment, leave, promotions, scheduling hours, benefits.	Policies that are designed to better accommodate the needs of dual-career couples	Implement polices regarding job transfers, relocation, promotions, and benefits for satisfying the needs of dual-career families

Table 3.7 (continued)

Original Content		Final Content	
Program	Description	Program	Description
28 Paid and unpaid parental leave	Maternity leave, paternity leave, and sick leave for family illnesses	Paid and unpaid parental leave	Including nourish leave, maternity leave, and paternity leave for helping employees caring for their family needs.
29 Dependent care services	Services including on or near-site child care, dependent care directories, or child care subsidies	Dependent care services	Services including establishing near-site child care center, child care subsidies, and child care directories
30 Job-sharing programs	Opportunities for two individuals or a couple to split the work and responsibilities to one full-time job	Job-sharing programs	Two employees split the work for one full-time job in order to cope with the policies of down-sizing or accommodating employee individual needs
31 Work-family programs	Programs that help employees manage their work-family role conflict and coping strategies.	Work-family programs	Help employees manage or cope with their work-family role conflicts.
32 Future forums	Management panels for sharing future trends and issues in the industry, environment, and company that might influence career choice and options with employees.	Future forums	Held by management panels for providing future industrial environmental trends and its impacts on employees' career choices and options.
33 Career advisers or functional representatives	Providing representatives from each division in the company to employees on job requirements and opportunities within their areas.	Career advisers or functional representatives	Assigning representatives from each division in order to offer employees information regarding job requirements and opportunities of the division

Respondents returned their questionnaires either through pre-paid self-addressed envelopes attached to the questionnaires, or by delivering them to the human resource representatives at each division or department, who forwarded all responses to the researcher. There was no compensation for the respondents' participation.

Validity

Validity refers to “the extent to which the test we’re using actually measures the characteristic or dimension we intend to measure (p.56)” (Walsh & Betz, 2001). Content validity was used for this study in order to judge whether the content represented the desired content. For an assessment of content validity, the major content areas and the items were submitted to a panel of judges. The four judges were university faculty members with specializations in human resource development, career development, and adult development. They evaluated the appropriateness and suitability of the items for the content area and written descriptions of each item.

After review by the panel judges, 7 middle managers (Appendix C), with more than ten years working experience in the TPC and representing the different departments in the company were asked to review the 36 career development programs and the description of each program. According to their opinions, the 36 programs in the questionnaire were reduced to 33 items and the questionnaire was revised.

In addition, the two scales in the original questionnaire were revised for the respondent's convenience and for the ease of data analysis (Appendix A). The first scale combined two subscales measuring the degree of the needs for the career development

programs toward the respondent's current position and future position. The second scale included the respondents' perceptions on whether the career development programs are provided, or should be provided by the company.

The preliminary 33 item questionnaire was pilot tested with 36 employees in the company. Revisions were made based on comments and suggestions from the employees who were administered the questionnaires.

Furthermore, in order to provide evidence to support the construct validity of the instrument, responses on all 33 career development programs were subjected to factor analysis. Two separate factor analyses using principal components analyses with Varimax rotation for the exploratory factor analysis for the first scale which contained two small sub-scales were performed. The results demonstrated that six factors emerged from the factor analysis and accounted for approximately 55 percent of the total variance for current positions and 55 percent of the total variance for future positions.

Reliability

Reliability refers to "the extent to which other researchers would arrive at similar results if they studied the same case using exactly the same procedures as the first researcher (Gall, Borg, & Gall, 2002). Internal consistency reliability is one of the types of reliability. It refers to the extent to which the test items reflect one dimension rather than several dimensions (Walsh & Betz, 2001). An internal consistency reliability is calculated from a single administration of one test. The scale was appropriately examined for reliability by using internal consistency. Since Cronbach's Alpha, one of

the formulas used to compute inter-item consistency, is appropriate for use with non-dichotomous items (e.g. items scored using five-point scales) (Walsh & Betz, 2001), Cronbach's Alpha using summated scale scores completed for each respondent was used on the ratings of 33 programs in terms of their present and future position. The alpha coefficients of the two subscales in the first scale were 0.93 and 0.94, respectively. Alpha internal consistency estimates (Cronbach's Alpha) were also generated for each factor resulting from the factor analyses and the coefficients ranged from .70 to .87.

Data Analysis

The purpose of the study was to investigate the perceptions of career development programs needs for employees in the TPC in order to formulate career development programs. Information from the questionnaire was transferred to the computer for data processing. The Statistical Package for the Social Sciences (SPSS) Version 12.0 was utilized in the analysis of the data. Descriptive statistics, such as frequency and percentage, were used to analyze and assess demographic information collected from the Personal Data Sheet in order to provide a profile of respondent's characteristics. Data collected from the questionnaire were analyzed to answer the research questions of this study. The research questions, research hypotheses, and data analyses techniques conducted to answer each question are specified as follows:

Research Question 1

What are the TPC white-collar employees' perceptions of career development program needs in terms of their Job Function (Technology, Management, and Business/Sales)?

This research question relates to the first scale of the Career Development Needs Assessment Survey. Two separate five-point Likert type scales were used to inquire about the respondents' perceptions of career development program needs for their current and future positions in terms of 33 career development programs. To answer the first research question, descriptive techniques were first used to analyze the means, standard deviations, and rank orders for each questionnaire item. The means, standard deviations, and rank orders were also calculated for each Job Function (Technology, Management, and Business/Sales).

Research Question 2

What are the TPC white-collar employees' perceptions of career development program needs in terms of their Job Role (Employee, Line-Manager, and Upper-Manager)?

This question was associated with the career development programs in the first scale of the Career Development Needs Assessment Survey. To answer the second research question, descriptive statistics using means, standard deviations, and rank orders were calculated for each defined Job Role (Employee, Line-Manager, and Upper-Manager) to depict the respondents' perceptions of career development program needs for their current and future positions.

Research Question 3

What are the constructs underlying the perceived career development needs assessed via the questionnaire (Career Development Needs Assessment Survey)?

Separate exploratory factor analyses were performed for the two sub-scales in the first scale of “Career Development Need Assessment Survey” to explore the underlying constructs of the perceptions of career development program needs obtained from the questionnaire. This method has been applied successfully in former studies used for groupings of personnel and career development activities (Tsui & Milkovich, 1987; Baruch & Peiperl, 2000). The items for both subscales (career development program needs for current positions and career development program needs for future positions) were analyzed using Principle Components Analysis. Factors with eigenvalues greater than 1.0 were retained. The initial factors were rotated with a Varimax procedure for interpretation. A factor loading criterion of .30 was used to select which items were interpretable (Gorsuch, 1983 and Tinsley & Tinsley, 1987). Alpha Internal Consistency estimates using the Cronbach Alpha for the rotated factors were also calculated.

Research Question 4

Are there differences in the perceptions of career development program needs among the TPC white-collar employees in terms of their Job Function and Job Role for their current position?

Based on this research question, the following hypotheses stated in the null form were identified:

- There is no significant interaction between Job Function and Job Role with regard to

the perceptions of career development program needs for current positions.

- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Job Function.
- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Job Role.

A two-way multivariate analysis of variance (MANOVA) using Job Function (Technology, Management, and Business/Sales) and Job Role (Employees, Line-Mangers, and Upper-Managers) as the independent variables and the responses on 33 career development program needs for the current position in the first scale of the questionnaire as the dependent variables was used to test the hypotheses for Research Question 4. Pillai's Trace was used to test for global significance ($p < .05$).

Following a significant MANOVA, researchers have several choices in terms of post hoc procedures. Techniques such as descriptive discriminant analysis (DDA) and ANOVA have been extensively reported in the literature. At present, there is controversy regarding the statistical power associated with these two widely used post hoc procedures. From a statistical point of view, DDA has been thought to be superior to multiple ANOVAs because the former takes into consideration the interdependency of the dependent variables. However, as Spector (1977) pointed out, the weights in DDA are mathematically derived and the substantive significance of the weights are often lost (Borgen & Seling, 1978). Recent research by Schneider (2002) has suggested that the

power and type I error associated with discriminant analysis is suspect. Additionally, ANOVA post hoc procedures have been criticized for failing to consider intercorrelations among the multiple dependent variables. Furthermore, the differences in the multivariate latent variables analyzed in the multivariate analysis can not be revealed via univariate ANOVA (Huberty & Morris, 1989; Thompson, 1994; Schneider, 2002).

In this study which utilized a 33x 33 correlation matrix, 528 distinct correlation coefficients were obtained for the dependent variables. Since the correlations among the 33 dependent variables were all fairly low (highest .653 and lowest .019, most were significantly different from 0 because of large degrees of freedom but exhibited small shared variance- .42 for highest), the post hoc procedures of multiple ANOVAs as well as DDA were utilized as post hoc procedures to probe any significant MANOVA results. A comparison of the results obtained from these 2 procedures is presented and discussed in Chapter V.

The two post hoc analyses were applied, when appropriate, to determine the differences among the groups. Firstly, DDA was performed to identify the group differences among the 33 career development programs. Discriminant analysis can be used for both description and prediction: (1) in descriptive discriminant analysis, the focus is to describe the major differences among the mutually exclusive groups following a MANOVA through the use of uncorrelated linear combinations of the original variables; (2) in predictive discriminant analysis, the focus is to classify subjects into groups based on a combination of measures (Stevens, 2002). Since the focus of this study was to examine differences in perceived career development program needs for

individuals who possessed different characteristic variables, DDA was applied as the first post hoc procedure following significant MANOVA results. In this study, the classification groups, Job Function (Technology, Management, and Business/Sales) and Job Role (Employee, Line-Manager, and Upper-Manager), were treated as the dependent variables and the 33 career development program needs were treated as the independent variables. Secondly, ANOVAs were conducted as a second follow-up procedure to determine the source of the multivariate significance with an alpha level of .01. When needed, Ryan-Einot-Gabriel-Welsch F (REGWF) post hoc tests were also employed.

Research Question 5

Are there differences in the perceptions of career development program needs among the TPC white-collar employees in terms of their Job Function and Job Role for their future positions?

Based on this research question, the following hypotheses stated in the null form were identified:

- There is no significant interaction between Job Function and Job Role with regard to the perceptions of career development program needs for future positions.
- There are no significant differences in responses with regard to perception of career development program needs for future positions for respondents who differ in terms of Job Function.
- There are no significant differences in responses with regard to perception of career development program needs for future positions for respondents who differ in terms of Job Role.

A two-way multivariate analysis of variance (MANOVA) using Job Function (Technology, Management, and Business/Sales) and Job Role (Employee, Line-Manger, and Upper-Manager) as the independent variables and the responses on 33 career development program needs for the future position in the first scale of the questionnaire as the dependent variables were used to test the hypotheses for Research Question 5. Pillai's Trace was used to test for global significance ($p \leq 05$).

Two post hoc analyses were applied, as needed, to determine the differences among the groups. Descriptive discriminant analyses were employed as the first post hoc procedure following significant MANOVA results to distinguish among the two classification groups (Job Function and Job Role) based on linear combinations of the 33 measures. ANOVAs were conducted as the second follow-up procedure to determine the source of the significance with an alpha level of .01. When needed, Ryan-Einot-Gabriel-Welsch F post hoc tests were also employed.

Research Question 6

Are there significant differences among perceptions of career development program needs for individuals who possess different demographic variables of Gender, Age, and Education?

The research hypothesis associated with this research question was formulated to determine self-expressed career development program needs in regards to respondents' Gender, Age, and Education. The hypotheses, restated in the null form were:

- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms

of Gender.

- There are no significant differences in responses with regard to perceptions of career development program needs for future positions for respondents who differ in terms of Gender.
- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Age.
- There are no significant differences in responses with regard to perceptions of career development program needs for future positions for respondents who differ in terms of Age.
- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Education.
- There are no significant differences in responses with regard to perceptions of career development program needs for future positions for respondents who differ in terms of Education.

Research Question 6 was addressed using three separate one-way MANOVAs for Gender, Age and Education for both perceived current and future career development program needs. Pillai's Trace was employed to test for global significance ($p \leq 05$).

Two post hoc analyses were applied, as needed, to determine the differences among the groups. Discriminant analysis was employed as the first post hoc procedure following significant MANOVA results to distinguish among the different demographic

groups of Gender, Age, and Education based on linear combinations of the 33 measures. ANOVAs were conducted, as the second follow-up procedure, to determine the source of the significance with an alpha level of .01. When needed, ANOVA and REGWF post hoc tests were also employed.

Research Question 7

Are there differences in the proportions of respondents' perceptions that the company already provided the selected career development programs?

This research question was addressed by utilizing the total sample and the individuals classified by Job Function and Job Role. The hypotheses associated with this research question stated in the null form were:

- There is no significant difference in the proportion of participants' responses with regard to whether respondents believed the organization already provided the career development programs.
- There is no significant difference between the proportions of participants' responses with regard to whether respondents believed the organization already provided the career development programs for individuals with different levels of Job Function.
- There is no significant difference between the proportions of participants' responses with regard to whether respondents believed the organization already provided the career development programs for individuals with different levels of Job Role.

A Chi-square test was utilized to assess the statistical significance of the differences between career development programs for the total sample, and Job Function and Job Role classifications. The cross-tabulation of each of the items by Job Function

and by Job Role was also generated. Significance was computed at the .05 level for each of the hypothesis.

Research Question 8

Are there differences in the proportions of respondents in terms of perceptions that the company should provide the selected career development programs?

This research question was addressed by utilizing the total sample and the classification variables of Job Function and Job Role. The hypotheses pertaining to this research question stated in the null form were:

- There is no significance difference in the proportion of participants' responses with regard to whether respondents thought the organization should provide the career development programs.
- There is no significant difference between the proportions of participants' responses with regard to whether respondents thought the organization should provide the career development programs for individuals with different levels of Job Function.
- There is no significant difference between the proportions of participants' responses with regard to whether respondents thought the organization should provide the career development programs for individuals with different levels of Job Role.

A Chi-square test was utilized to analyze the statistical significance of the differences between career development programs and total sample, Job Function, and Job Role. The cross-tabulation of each of the items by Job Function and By Job Role was created. Significance was computed at the .05 level for each of the hypothesis.

Summary

This chapter was used to describe the methodology for carrying out the present study. A general description of the setting, population, and sample was presented, along with information regarding the employee groups utilized for the survey. The instrument utilized and the data collection processes were discussed as to their development and validity. Lastly, the statistical processes selected for analyzing the data were presented.

CHAPTER IV

THE RESULTS

Introduction

The results of the data analyses are presented in this chapter. The chapter is mainly divided into four sections. The first section is a report of the demographic background of the sample. The second section addresses the first two research questions regarding the descriptive statistics of perceived career development program needs for current and future positions for respondents who differ in Job Function and Job Role. The third section presents the third research question concerning the underlying constructs of perceived career development program needs. The fourth section addresses Research Questions 4, 5, and 6 which are associated with the comparisons of perceived career development program needs among the different levels of Job Function, Job Role, Gender, Age, and Education with respect to their current and future positions. The last two research questions regarding the respondents' opinions on whether the selected career development programs were already provided or should be provided by the company is exhibited in the fourth section.

Demographic Background of the Sample

As was mentioned in Chapter III, the sample was selected from the original population in the study that included 1636 white-collar employees in the TPC. Between July and August of 2002, 1351 participants returned the questionnaire for an overall response rate of 82.5%.

An examination of the descriptive statistics for the sample revealed that the final sample consisted of 1067 male and 240 female white-collar employees. Forty-one individuals failed to respond to the question regarding Gender. The sample consisted of 12.5% Upper-Managers (n=167), 27.1% Line-Managers (n=364), and 60.4% Employee (n=818). In addition, six hundred ninety-seven (52.3%) employees were in the Job Function classified as Technology, three hundred sixty-two (27.2%) employees were in the Job Function classified as Management, and two hundred seventy-three (20.7%) employees were in the Job Function classified as Business/Sales. Seventeen of the respondents didn't indicate either their Job Function or Job Role. A summary of the number of frequencies by Job Function and Job Role is presented in Table 4.1.

Table 4.1 Response Rate by Job Function and Job Role

Job Role	Job Function						Total	
	Technology		Management		Business/Sales		n	%
	n	%	n	%	n	%		
Upper-manager	72	5.4	70	5.2	25	1.9	167	12.5
Line-manager	203	15.2	115	8.6	43	3.2	361	27.1
Employee	422	31.7	177	13.3	105	15.4	804	60.4
Total	697	52.3	362	27.2	273	20.7	1332	100.0

The respondents' characteristics regarding gender, age, education, and years of work experience at the current position are given in the Table 4.2.

Table 4.2 The Respondents' Characteristics Regarding Gender, Age, Education, and Years of Work Experience for the Current Positions

		<i>Frequency</i>	<i>Percent</i>
<i>Gender</i>	Female	240	17.8
	Male	1062	79.1
	Missing	42	3.1
	Total	1349	100.0
<i>Age</i>	21~30	67	5.0
	31~40	269	20.0
	41~50	549	39.6
	51~60	398	29.5
	61 and Above	54	4.0
	Missing	12	.9
	Total	1349	100.0
<i>Education</i>	Middle School and Below	2	.1
	High School	98	7.3
	Vocational School	496	36.8
	College	570	42.3
	Graduate School	157	11.6
	Missing	26	1.9
	Total	1349	100.0
<i>Years of work experience for the current position</i>	Less than 1	283	21.0
	1~4	463	34.3
	5~9	232	17.2
	10~19	159	11.8
	20 or more	54	4.0
	Missing	158	11.7
	Total	1349	100.0

Observing Table 4.2, the final sample consisted of 1,062 male white-collar employees and 240 female white-collar employees. About thirty-nine percent of the respondents (n=549) were between the ages of 41 and 50, 29.5% (n=398) were between the ages of 51 and 60. Of the remaining respondents, 269 (20.0%) were between the ages of 31 and 40, 67 (5.0 %) were between the ages of 21 and 30, 54 (4.0%) were above the age of 60. Twelve individuals failed to respond to the question concerning Age.

Of those responding to the question regarding Education, slightly less than half (42.3% or 570) of the subjects had a college degree, and 496 (36.8%) had obtained a degree from vocational school. One hundred fifty-seven (11.6%) had a graduate degree, 98 (7.3%) had a high school degree, and only 2 had a middle school or below degree. Twenty-six respondents failed to respond to the question about Education.

In terms of years of work experience at the present position, the data revealed that 34.3% of the respondents (n=463) had worked in the current position for 1 to 4 years, 21% (n=283) had worked in the current position for less than a year; 17.2% (n=232) had worked in the current position for 5 to 9 years; 11.8% (n=159) had worked in the current position for 10 to 19 years; and 4.0% (n=54) had worked in the current position more than 20 years. One hundred fifty-eight individuals did not respond to this question.

Research Questions, Hypotheses, and Statistical Analyses

Data collected and analyzed from the questionnaire were used to answer the research questions in this study. The data presented for Research Questions 1 and 2 were used to summarize the questionnaire responses according to respondents' Job Function (Technology, Management, and Business/Sales) and Job Role (Employee, Line-Manager, Mid-Manager, and Top-Manager). The data presented for Research Question 3 was used to display the findings in exploring the constructs underlying the *Career Development Needs Assessment Survey*. The data presented for Research Questions 4 and 5 were employed to illustrate the findings of the comparison of the employees' perceptions of career development program needs when grouped by Job Function and Job Role. The data presented for Research Question 6 were used to show the findings of differences among perceptions of career development program needs and demographic data collected for this study. The data presented for Research Questions 7 and 8 were employed to demonstrate the findings of the differences between the respondents' perceptions of the career development program needs currently or in the future, and the respondents' perceptions of the company's obligation to provide the career development programs. The following section specifies the research questions, research hypotheses, and data analysis techniques used to answer each question.

Research Question 1

What are the TPC white-collar employees' perceptions of career development program needs in terms of their Job Function (Technology, Management, and Business/Sales)?

This question was related to the career development programs in the first scale of the Career Development Needs Assessment Survey. The first scale requested respondents' perceptions of career development program needs in terms of their current and future position. Thirty-three questionnaire items were used to measure the respondents' perceptions of career development program needs.

Perceived Career Development Program Needs for Current Positions

The overall mean scores and standard deviations were calculated for each questionnaire item (perceptions of career development program needs for the current position) for the first scale of the questionnaire. The descending rank ratings of the 33 career development programs for overall response are reported to describe the highest to lowest perceived career development program needs for current positions. The overall mean, standard deviation, and rank order of each item are presented in Table 4.3.

In addition, the mean and standard deviation were calculated for each defined Job Function (Technology, Management, and Business/Sales) to depict the respondents' perceptions of career development program needs for their current positions. The rank order of each program for the respondents with three types of Job Function is presented in Table 4.4.

Table 4.3 Overall Means, Standard Deviations, and Rank Orders for Perceived Career Development Program Needs for Respondents' Current Positions.

	Item/ Career Development Program	Mean	SD	Rank Order
1	On-the-job training/ internal training	4.05	.76	2
2	Career workbooks	3.93	.80	5
3	Career planning workshops	3.75	.90	14
4	Employee career counseling	3.63	.90	23
5	Employees' service record	3.98	.78	3
6	Employees' career paths design	3.75	.88	14
7	A career resource center	3.93	.79	5
8	A job posting system	3.65	1.00	20
9	Career simulation & assessment centers	3.37	.93	30
10	Psychological testing for vocational interests and work attitudes	3.59	.96	24
11	Promotability forecasts	3.73	.93	17
12	Succession planning	3.66	.98	19
13	Job rotation programs	3.88	.92	8
14	Tuition refund programs	4.10	.84	1
15	Mentoring programs	3.93	.84	5
16	Realistic job previews and introduction of company	3.80	.91	10
17	Salary reduction	2.99	1.07	33
18	Midcareer development programs	3.94	.86	4
19	Supervisors workshops on older worker issues	3.64	.97	21
20	Preretirement counseling workshops	3.69	1.05	18
21	Incentives for early retirement	3.76	1.01	13
22	Flexible work schedules	3.51	1.05	27
23	Special development programs for "fast track" or "high-potential" employees	3.81	.89	9
24	Career counseling training for supervisors	3.64	.92	21
25	Outplacement programs for terminated employees	3.77	1.00	11
26	Special programs for women and minorities	3.54	.99	26
27	Policies that are designed to better accommodate the needs of dual-career couples	3.74	.92	16
28	Paid and unpaid parental leave	3.44	1.07	29
29	Dependent care services	3.34	1.12	32
30	Job-sharing programs	3.35	.99	31
31	Work-family programs	3.49	.96	28
32	Future forums	3.77	.87	11
33	Career advisers or functional representatives	3.57	.91	25

The seven programs reported by the respondents as being the highest perceived career development needs for their current position were: 1) Tuition Refund Programs, 2) Training to Perform the Current Job, 3) Employees' Service Record, 4) Midcareer Development Programs, 5) Mentoring Programs, 6) A Career Resource Center, and 7) Career Workbooks. The reason for selecting seven programs rather than the five highest (as was originally planned) is that programs with ranks 5, 6, and 7 had tied values. The following five programs were perceived as being the lowest needed for their current positions: 1) Salary Reduction, 2) Dependent Care Services, 3) Job-Sharing Programs, 4) Career Simulation & Assessment Centers, and 5) Paid and Unpaid Parental Leave (see Table 4.3).

The means, standard deviations, and rank orders of perceived career development program needs for respondents' current position by three types of job function (Technology, Management, and Business/Sale) are reported in the Table 4.4.

Table 4.4 Means, Standard Deviations, and Rank Orders for Perceived Career Development Program Needs for Respondents' Current Position by Job Function

Item/ Career Development Programs	Technology			Management			Business/Sales		
	Mean	SD	R*	Mean	SD	R*	Mean	SD	R*
1 On-the job training/ internal training	4.10	.73	2	4.01	.76	2	3.98	.81	3
2 Career workbooks	3.94	.83	7	3.93	.75	6	3.91	.80	5
3 Career planning workshops	3.78	.91	13	3.74	.86	17	3.71	.91	13
4 Employee career counseling	3.64	.89	19	3.66	.89	22	3.56	.93	24
5 Employees' service record	3.97	.77	4	4.00	.79	3	3.95	.80	4
6 Employees' career paths design	3.76	.88	14	3.75	.89	14	3.70	.88	15
7 A career resource center	3.96	.82	6	3.93	.71	6	3.89	.79	8
8 A job posting system	3.67	1.02	18	3.61	.99	23	3.66	.99	19
9 Career simulation & assessment centers	3.36	.92	30	3.40	.94	29	3.33	.93	32

Table 4.4 (continued)

Item/ Career Development Programs	Technology			Management			Business/Sales		
	Mean	SD	R*	Mean	SD	R*	Mean	SD	R*
10 Psychological testing for vocational interests and work attitudes	3.60	.95	25	3.60	.99	24	3.56	.97	24
11 On-the-job training/ internal training	3.76	.91	14	3.72	.94	18	3.65	.98	20
12 Succession planning	3.64	.98	19	3.72	.96	18	3.64	1.02	21
13 Job rotation programs	3.81	.95	9	3.94	.87	4	3.99	.89	2
14 Tuition refund programs	4.16	.83	1	4.06	.82	1	4.02	.90	1
15 Mentoring programs	3.99	.81	3	3.84	.90	9	3.90	.86	6
16 Realistic job previews and introduction of company and introduction of company	3.79	.90	11	3.81	.91	10	3.81	.92	9
17 Salary reduction	2.94	1.07	32	3.11	1.02	33	2.98	1.12	33
18 Midcareer development programs	3.97	.87	4	3.94	.83	4	3.90	.88	6
19 Supervisors workshops on older worker issues	3.64	1.01	19	3.68	.94	20	3.60	.96	23
20 Preretirement counseling workshops	3.63	1.07	23	3.80	.99	11	3.69	1.08	17
21 Incentives for early retirement	3.74	1.02	16	3.85	.96	8	3.71	1.06	13
22 Flexible work schedules	3.50	1.05	27	3.57	1.01	25	3.44	1.11	30
23 Special development programs for “fast track” or “high-potential” employees	3.82	.87	8	3.80	.94	11	3.80	.91	10
24 Career counseling training for supervisors	3.64	.93	19	3.67	.91	21	3.61	.94	22
25 Outplacement programs for terminated employees	3.79	.99	11	3.75	.98	14	3.77	1.07	11
26 Special programs for women and minorities	3.50	1.00	27	3.50	1.02	27	3.69	.93	17
27 Policies that are designed to better accommodate the needs of dual-career couples	3.70	.94	17	3.80	.87	11	3.75	.92	12
28 Paid and unpaid parental leave	3.48	1.09	28	3.37	1.09	30	3.45	1.02	28
29 Dependent care services	3.39	1.13	29	3.20	1.14	32	3.36	1.08	31
30 Job-sharing programs	3.30	.99	31	3.36	1.00	31	3.47	.97	27
31 Work-family programs	3.53	.96	26	3.45	.97	28	3.45	.93	28
32 Future forums	3.81	.87	9	3.75	.87	14	3.70	.86	15
33 Career advisers or functional representatives	3.62	.88	24	3.52	.94	26	3.50	.95	26

Note: * Rank Order

Analyzing the perceived needs for career development programs for employees' current positions, employees who were in the Job Function classified as Technology had high perceived needs for 1) Tuition Refund Programs, 2) On-The Job Training/ Internal Training, 3) Mentoring Programs, 4) Employees' Service Record, and 5) Midcareer Development Programs¹. They perceived lowest needs for 1) Salary Reduction, 2) Job-Sharing Programs, 3) Career Simulation & Assessment Centers, 4) Dependent Care Services, and 5) Paid and Unpaid Parental Leave.

The five highest perceived career development program needs revealed by the employees who were in the Job Function classification of Management were: 1) Tuition Refund Programs, 2), On-The Job Training/ Internal Training 3) Employees' Service Record, 4) Midcareer Development Programs, and 5) Job Rotation Programs³. Their lower perceived needs were: 1) Salary Reduction, 2) Dependent Care Services, 3) Job-Sharing Programs, and 4) Paid and Unpaid Parental Leave.

The five top needs identified by employees who were in the Job Function classified as Business/Sales were related to: 1) Tuition Refund Programs, 2) Job Rotation Programs, 3) On-The Job Training/ Internal Training, 4) Employees' Service Record, and 5) Career Workbooks. The four career development program needs rated by them as the lowest needed were: 1) Salary Reduction, 2) Career Simulation & Assessment Centers, 3) Dependent Care Services, and 4) Flexible Work Schedules (Table 4.3).

The most important and common perceived career development program needs for

³. The career development programs with ranks 4 and 5 had tied values.

the current positions identified by employees among three types of Job Function (Technology, Management, Business/Sales) were related to 1) Tuition Refund Programs, 2) On-The Job Training/ Internal Training, and 3) Employees' Service Record. The least perceived career development needs for employees' current positions were 1) Salary Reduction and 2) Dependent Care Services.

Perceived Career Development Program Needs for Future Positions

The means and standard deviations were calculated for the first scale of each questionnaire item (perceptions of career development needs for the future position). The descending rank ratings of the 33 career development programs for overall response are reported to describe the highest to lowest perceived career development needs for their future positions. The overall mean score, standard deviation, and rank order of each item are presented in Table 4.5.

Table 4.5 Overall Means, Standard Deviations, and Rank Orders for Perceived Career Development Program Needs for Respondents' Future Positions.

	Item/ Career Development Program	Mean	SD	Rank Order
1	On-the job training/ internal training	4.03	.77	2
2	Career workbooks	3.94	.79	6
3	Career planning workshops	3.80	.86	15
4	Employee career counseling	3.68	.86	23
5	Employees' service record	3.96	.78	4
6	Employees' career paths design	3.77	.86	18
7	A career resource center	3.96	.77	4
8	A job posting system	3.78	.93	16
9	Career simulation & assessment centers	3.43	.91	30
10	Psychological testing for vocational interests and work attitudes	3.63	.93	24
11	On-the-job training/ internal training	3.75	.91	20
12	Succession planning	3.74	.93	22
13	Job rotation programs	3.88	.90	9

Table 4.5 (continued)

Item/ Career Development Program	Mean	SD	Rank Order
14 Tuition refund programs	4.11	.83	1
15 Mentoring programs	3.93	.81	7
16 Realistic job previews and introduction of company and introduction of company	3.86	.86	11
17 Salary reduction	3.09	1.05	33
18 Midcareer development programs	4.00	.83	3
19 Supervisors workshops on older worker issues	3.77	.88	18
20 Preretirement counseling workshops	3.88	.89	9
21 Incentives for early retirement	3.89	.89	8
22 Flexible work schedules	3.58	.99	27
23 Special development programs for “fast track” or “high-potential” employees	3.82	.88	13
24 Career counseling training for supervisors	3.75	.85	20
25 Outplacement programs for terminated employees	3.85	.93	12
26 Special programs for women and minorities	3.60	.95	26
27 Policies that are designed to better accommodate the needs of dual-career couples	3.78	.87	16
28 Paid and unpaid parental leave	3.49	1.04	29
29 Dependent care services	3.32	1.11	32
30 Job-sharing programs	3.39	.96	31
31 Work-family programs	3.52	.93	28
32 Future forums	3.81	.85	14
33 Career advisers or functional representatives	3.61	.88	25

Among the 33 career development programs, the respondents perceived 1) Tuition Refund Programs and 2) On-The Job Training/ Internal Training as the highest needs when concerned about their future positions, followed by 3) Midcareer Development Programs, 4) A Career Resource Center, and 5) Employees’ Service Record⁴. On the other hand, the respondents perceived 1) Salary Reduction and 2) Dependent Care

⁴. The career development programs with ranks 4 and 5 had tied values.

Services as the lowest needs for their future positions, followed by 3) Job-Sharing Programs, 4) Career Simulation & Assessment Centers, and 5) Paid and Unpaid Parental Leave. The calculated perceived career development needs in rank order for respondents' future position were presented in Table 4.5.

The means and standard deviations were calculated for each defined Job Function (Technology, Management, and Business/Sales) to describe the respondents' perceptions of career development program needs for their future position. The rank order of each program for the respondents with three types of Job Function is presented in Table 4.6.

Table 4.6 Means, Standard Deviations, and Rank Orders of Perceived Career Development Program Needs for Respondents' Future Position by Job Function

Item/ Career Development Program	Technology			Management			Business/Sales		
	Mean	SD	R*	Mean	SD	R*	Mean	SD	R*
1 On-the job training/ internal training	4.07	.76	2	4.03	.77	2	3.96	.81	3
2 Career workbooks	3.94	.79	7	3.97	.75	3	3.91	.84	8
3 Career planning workshops	3.83	.85	13	3.78	.83	14	3.75	.91	16
4 Employee career counseling	3.70	.84	23	3.67	.86	23	3.63	.91	24
5 Employees' service record	3.97	.76	5	3.93	.81	7	3.96	.78	3
6 Employees' career paths design	3.81	.86	15	3.75	.85	17	3.74	.90	17
7 A career resource center	3.98	.80	4	3.96	.71	4	3.94	.76	6
8 A job posting system	3.79	.92	17	3.74	.95	19	3.77	.96	15
9 Career simulation & assessment centers	3.44	.90	30	3.43	.94	29	3.42	.91	31
10 Psychological testing for vocational interests and work attitudes	3.64	.91	25	3.62	.98	24	3.62	.92	25
11 Promotability forecasts	3.77	.87	20	3.74	.91	19	3.69	.99	22
12 Succession planning	3.74	.90	22	3.74	.94	19	3.72	.98	21
13 Job rotation programs	3.79	.92	17	3.95	.86	5	4.00	.89	2
14 Tuition refund programs	4.15	.83	1	4.07	.82	1	4.04	.87	1
15 Mentoring programs	3.97	.78	5	3.85	.86	10	3.92	.85	7
16 Realistic job previews and introduction of company	3.86	.86	12	3.81	.88	12	3.89	.84	10
17 Salary reduction	3.05	1.05	33	3.18	1.01	32	3.06	1.10	33
18 Midcareer development programs	4.05	.80	3	3.95	.85	5	3.95	.85	5

Table 4.6 (continued)

Item/ Career Development Program	Technology			Management			Business/Sales		
	Mean	SD	R*	Mean	SD	R*	Mean	SD	R*
19 Supervisors workshops on older worker issues	3.81	.88	15	3.73	.86	22	3.74	.88	17
20 Preretirement counseling workshops	3.89	.87	9	3.86	.92	9	3.91	.91	8
21 Incentives for early retirement	3.91	.87	8	3.91	.87	8	3.83	.97	12
22 Flexible work schedules	3.59	.98	26	3.62	.96	24	3.51	1.06	27
23 Special development programs for “fast track” or “high-potential” employees	3.82	.86	14	3.80	.93	13	3.83	.86	12
24 Career counseling training for supervisors	3.78	.82	19	3.75	.85	17	3.68	.92	23
25 Outplacement programs for terminated employees	3.89	.90	9	3.78	.95	14	3.88	.99	11
26 Special programs for women and minorities	3.58	.95	27	3.54	.98	27	3.73	.89	20
27 Policies that are designed to better accommodate the needs of dual-career couples	3.75	.89	21	3.82	.86	11	3.80	.87	14
28 Paid and unpaid parental leave	3.52	1.05	29	3.40	1.06	31	3.50	.99	29
29 Dependent care services	3.38	1.11	31	3.18	1.13	32	3.35	1.07	32
30 Job-sharing programs	3.35	.96	32	3.37	.97	31	3.51	.93	27
31 Work-family programs	3.55	.93	28	3.47	.94	28	3.48	.90	30
32 Future forums	3.87	.83	11	3.77	.87	16	3.74	.87	17
33 Career advisers or functional representatives	3.67	.84	24	3.55	.91	26	3.53	.93	26

Note: * Rank Order

Analyzing the perceived needs for career development programs for employees' future positions, the five highest perceived needs for career development programs reported by respondents who were in the Job Function classification of Technology were: 1) Tuition Refund Programs, 2) On-The Job Training/ Internal Training, 3) Midcareer Development Programs, 4) A Career Resource Center, 5) Mentoring Programs, and 6) Employees' Service Record³. Career programs with ranks 5 and 6 had tied values. Salary Reduction, Job-Sharing Programs, Dependent Care Services, and Career Simulation & Assessment Centers were perceived to be the lowest needs for their future positions.

The respondents who were in the Job Function classified as Management reported six programs they perceived as their highest needs for their future position as 1) Tuition Refund Programs, 2) On-The Job Training/ Internal Training, 3) Career Workbooks, 4) A Career Resource Center, 5) Midcareer Development Programs, and 6) Job Rotation Programs⁵. The four programs they perceived as the least needed were: 1) Dependent Care Services, 2) Salary Reduction, 3) Job-Sharing Programs, and 4) Paid and Unpaid Parental Leave.

⁵. The career development programs with ranks 5 and 6 had tied values.

The following five programs were perceived by the respondents who were in the Job Function of Business/Sales as the highest needs for their future positions: 1) Tuition Refund Programs, 2) Job Rotation Programs, 3) On-The Job Training/ Internal Training, 4) Employees' Service Record⁶, and 5) Midcareer Development Programs. The four career development programs rated by them as the lowest needs were: 1) Salary Reduction, 2) Dependent Care Services, 3) Career Simulation & Assessment Centers, and 4) Work-Family Programs (Table 4.6).

Tuition Refund Programs, On-The Job Training/ Internal Training, and Midcareer Development Programs were ranked by respondents among three job functions (Technology, Management, Business/Sales) as the most important perceived career development needs for their future positions. Conversely, the two programs, Salary Reduction and Dependent Care Services, were perceived by respondents with different job functions as the least needed for their future positions.

⁶. The career development programs with ranks 3 and 4 had tied values.

Research Question 2

What are the TPC white-collar employees' perceived career development program needs in terms of their Job Role (Employee, Line-Manager, and Upper-Manager)?

This question was associated with the career development programs in the first scale of the Career Development Needs Assessment Survey. The respondents were asked to indicate their perceived needs for the 33 career development programs for their current and future positions. The respondents' perception of each individual item in terms of their current and future positions is report in the following section.

Perceived Career Development Program Needs for Current Positions

The means and standard deviations were calculated for each defined job role (Employee, Line-Manager, And Upper-Manager) to depict the respondents' perceptions of career development program needs for their current positions. The rank order of each program for the respondents with three types of job roles was also examined (Table 4.7).

The means, standard deviations, and rank orders of perceived career development program needs for respondents' current position by three types of job roles (Employees, Line-Managers, and Upper-Managers) are exhibited in the Table 4.7.

Table 4.7 Means, Standard Deviations, and Rank Orders of Perceived Career Development Program Needs for Respondents' Current Positions by Job Role

Item/ Career Development Program	Employee			Line-Manager			Upper-Manager		
	Mean	SD	R*	Mean	SD	R*	Mean	SD	R*
1 On-the job training/ internal training	4.11	.72	2	3.98	.78	3	3.89	.82	5
2 Career workbooks	3.95	.81	6	3.90	.76	5	3.84	.86	10
3 Career planning workshops	3.80	.89	14	3.71	.92	15	3.63	.89	20
4 Employee career counseling	3.65	.87	20	3.59	.95	22	3.57	.89	22
5 Employees' service record	3.95	.79	6	4.03	.74	1	3.98	.79	1
6 Employees' career paths design	3.78	.85	16	3.67	.93	18	3.72	.89	16
7 A career resource center	3.96	.78	5	3.91	.81	4	3.86	.76	9
8 A job posting system	3.83	.95	10	3.44	.99	26	3.25	1.09	30
9 Career simulation & assessment centers	3.39	.93	32	3.33	.93	29	3.35	.90	27
10 Psychological testing for vocational interests and work attitudes	3.64	.95	22	3.55	.95	23	3.43	1.04	24
11 On-the-job training/ internal training	3.76	.94	17	3.67	.93	18	3.68	.91	18
12 Succession planning	3.58	1.04	25	3.72	.92	14	3.96	.74	2
13 Job rotation programs	3.90	.93	8	3.85	.95	7	3.89	.80	5
14 Tuition refund programs	4.20	.82	1	3.99	.84	2	3.84	.87	10
15 Mentoring programs	4.00	.81	3	3.85	.89	7	3.82	.86	14
16 Realistic job previews and introduction of company	3.84	.87	9	3.77	.94	11	3.68	1.00	18
17 Salary reduction	2.96	1.08	33	3.05	1.05	32	3.02	1.02	32
18 Midcareer development programs	3.99	.87	4	3.90	.83	5	3.83	.89	13
19 Supervisors workshops on older worker issues	3.57	1.03	27	3.71	.92	15	3.84	.77	10
20 Preretirement counseling workshops	3.66	1.07	19	3.67	1.06	18	3.87	.90	7
21 Incentives for early retirement	3.69	1.07	18	3.84	.94	9	3.91	.88	3
22 Flexible work schedules	3.60	1.05	23	3.43	1.02	27	3.22	1.03	31
23 Special development programs for "fast track" or "high-potential" employees	3.81	.90	13	3.80	.90	10	3.87	.85	7
24 Career counseling training for supervisors	3.53	.98	29	3.77	.85	11	3.90	.69	4
25 Outplacement programs for terminated employees	3.82	.99	12	3.71	1.01	15	3.69	.99	17
26 Special programs for women and minorities	3.59	1.01	24	3.46	.98	24	3.43	.91	24
27 Policies that are designed to better accommodate the needs of dual-career couples	3.83	.90	10	3.60	.95	21	3.60	.84	21

Table 4.7 (continued)

Item/ Career Development Program	Employee			Line-Manager			Upper-Manager		
	Mean	SD	R*	Mean	SD	R*	Mean	SD	R*
28 Paid and unpaid parental leave	3.58	1.06	25	3.21	1.09	30	3.27	1.00	29
29 Dependent care services	3.55	1.10	28	3.01	1.11	33	3.02	1.02	32
30 Job-sharing programs	3.43	.99	31	3.20	.99	31	3.29	.97	28
31 Work-family programs	3.53	.97	29	3.40	.95	28	3.50	.91	23
32 Future forums	3.79	.87	15	3.73	.89	13	3.76	.84	15
33 Career advisers or functional representatives	3.65	.90	20	3.46	.91	24	3.43	.92	24

Note: * Rank Order

Among the 33 career developments programs, the Employees perceived 1) Tuition Refund Programs and 2) On-The Job Training/ Internal Training as the highest needs for their current position, followed by 3) Mentoring Programs, 4) Midcareer Development Programs, and 5) A Career Resource Center. They rated 1) Salary Reduction, 2) Career Simulation & Assessment Centers, 3) Job-Sharing Programs, 4) Work-Family Programs, and 5) Career Counseling Training for Supervisors⁵ as the least needed for their current positions.

The Line-Managers rated 1) Employees' Service Record, 2) Tuition Refund Programs, and 3) On-The Job Training/ Internal Training as the highest needs for their current positions, followed by 4) A Career Resource Center, 5) Career Workbooks, and 6) Midcareer Development Programs⁷. The four programs perceived by them as the least needed were: 1) Dependent Care Services, 2) Salary Reduction, 3) Job-Sharing Programs, and 4) Paid and Unpaid Parental Leave.

⁷ The career development programs with ranks 29 and 30 had tied values.

Unlike the Employees and Line-Managers, the Upper-Managers perceived 1) Employees' Service Record, 2) Succession Planning, and 3) Incentives for Early Retirement as the highest needs for their current positions, followed by 4) Career Counseling Training for Supervisors, 5) On-The Job Training/ Internal Training, and 6) Job Rotation Programs⁸. They rated 1) Dependent Care Services and 2) Salary Reduction⁹ as the least needed, followed by 3) Flexible Work Schedules and 4) Job Posting System.

The three groups of respondents (Employees, Line-Manager, and Upper-Manager) agreed that On-The-Job Training/ Internal Training was a relatively high perceived career development need. Salary Reduction had a relatively lower perceived career development program need.

Perceived Career Development Program Needs for Future Positions

The means and standard deviations were calculated for each defined Job Role (Employee, Line-Manager, and Upper-Manager) to depict the respondents' perceptions of career development program needs for their future positions. Additionally, the descending rank ratings of each program for the respondents with three types of Job Role are reported (Table 4.8). The calculated means, standard deviations, and rank order of perceived career development program needs for respondents' future position by three types of Job Role (Employee, Line-Manager, and Upper-Manager) are displayed in Table 4.8.

⁸. The career development programs with ranks 5 and 6 had tied values.

⁹. The career development programs with ranks 32 and 33 had tied values.

Table 4.8 Means, Standard Deviations, and Rank Orders of Perceived Career Development Program Needs for Respondents' Future Positions by Job Role

Item/ Career Development Program	Employee			Line-Manager			Upper-Manager		
	Mean	SD	R*	Mean	SD	R*	Mean	SD	R*
1 On-the job training/ internal training	4.08	.76	2	4.01	.72	2	3.84	.91	5
2 Career workbooks	3.98	.79	6	3.91	.76	7	3.81	.84	9
3 Career planning workshops	3.84	.86	15	3.78	.84	16	3.67	.85	16
4 Employee career counseling	3.72	.85	21	3.65	.87	22	3.57	.88	22
5 Employees' service record	3.96	.77	7	4.00	.77	3	3.88	.88	2
6 Employees' career paths design	3.80	.85	18	3.76	.88	19	3.66	.89	18
7 A career resource center	4.00	.76	4	3.93	.76	6	3.83	.80	7
8 A job posting system	3.93	.87	8	3.61	.93	23	3.41	1.09	25
9 Career simulation & assessment centers	3.48	.90	31	3.38	.91	29	3.31	.93	28
10 Psychological testing for vocational interests and work attitudes	3.70	.92	22	3.60	.92	24	3.38	.98	27
11 Promotability forecasts	3.79	.90	19	3.70	.93	20	3.62	.91	20
12 Succession planning	3.70	.96	22	3.77	.89	18	3.84	.84	5
13 Job rotation programs	3.89	.92	11	3.89	.88	8	3.78	.85	11
14 Tuition refund programs	4.21	.80	1	4.03	.79	1	3.78	.95	11
15 Mentoring programs	4.00	.77	4	3.88	.83	9	3.72	.94	15
16 Realistic job previews and introduction of company	3.92	.81	9	3.81	.89	15	3.66	.99	18
17 Salary reduction	3.08	1.08	33	3.13	1.00	32	3.07	1.01	32
18 Midcareer development programs	4.07	.80	3	3.95	.83	4	3.82	.89	8
19 Supervisors workshops on older worker issues	3.74	.91	20	3.83	.85	11	3.80	.78	10
20 Preretirement counseling workshops	3.89	.89	11	3.87	.90	10	3.86	.86	3
21 Incentives for early retirement	3.87	.92	13	3.94	.84	5	3.89	.87	1
22 Flexible work schedules	3.67	.98	26	3.52	.97	26	3.27	1.03	30
23 Special development programs for "fast track" or "high-potential" employees	3.82	.88	17	3.83	.87	11	3.77	.91	13
24 Career counseling training for supervisors	3.69	.89	24	3.83	.80	11	3.85	.70	4
25 Outplacement programs for terminated employees	3.90	.92	10	3.83	.94	11	3.67	.98	16
26 Special programs for women and minorities	3.65	.97	27	3.56	.92	25	3.44	.90	24
27 Policies that are designed to better accommodate the needs of dual-career couples	3.87	.86	13	3.66	.90	21	3.59	.80	21

Table 4.8 (continued)

Item/ Career Development Program	Employee			Line-Manager			Upper-Manager		
	Mean	SD	R*	Mean	SD	R*	Mean	SD	R*
28 Paid and unpaid parental leave	3.64	1.02	28	3.26	1.04	30	3.22	1.02	31
29 Dependent care services	3.53	1.09	30	3.02	1.06	33	2.99	1.06	33
30 Job-sharing programs	3.47	.95	32	3.24	.95	31	3.29	.95	29
31 Work-family programs	3.58	.92	29	3.41	.94	28	3.46	.90	23
32 Future forums	3.84	.86	15	3.78	.85	16	3.77	.82	13
33 Career advisers or functional representatives	3.69	.87	24	3.52	.88	26	3.40	.88	26

Note: * Rank Order

The five top perceived career development program needs rated by the Employees for their future positions were related to 1) Tuition Refund Programs, 2) On-The Job Training/ Internal Training, 3) Midcareer Development Programs, 4) A Career Resource Center, and 5) Mentoring Programs¹⁰. The four career development programs rated by them as the least needed were: 1) Salary Reduction, 2) Job-Sharing Programs, 3) Career Simulation & Assessment Centers, and 4) Dependent Care Services.

¹⁰ The career development programs with ranks 4 and 5 had tied values.

The five highest perceived career development needs identified by Line-Manager for their future positions were related to: 1) Tuition Refund Programs, 2) On-The Job Training/ Internal Training, 3) Employees' Service Record, 4) Midcareer Development Programs, and 5) Incentives for Early Retirement. Their lower perceived needs were related to: 1) Dependent Care Services, 2) Salary Reduction, 3) Job-Sharing Programs, and 4) Paid and Unpaid Parental Leave.

The six top career development program needs identified by Upper-Manager for their future positions were: 1) Incentives for Early Retirement, 2) Employees' Service Record, 3) Preretirement Counseling Workshops, 4) Career Counseling Training for Supervisors, 5) Succession Planning, and 6) On-The Job Training/ Internal Training. The above programs with rank 5 and 6 had tied values (see Table 4.8). The four career development programs rated by Upper-Manager as the lowest needs were: 1) Dependent Care Services, 2) Salary Reduction, 3) Paid and Unpaid Parental Leave, and 4) Flexible Work Schedules (Table 4.4).

The agreement reached by the three groups of respondents is that On-The Job Training/ Internal Training was a relatively higher perceived career development need for respondents' future positions. Salary Reduction and Dependent Care Services were relatively low perceived career development program needs.

Research Question 3

What are the constructs underlying the perceived organizational career development needs assessed via the questionnaire (Career Development Needs Assessment Survey)?

In order to detect the underlying constructs of the organizational career development programs in the questionnaire, a Principal Components Analysis with Varimax rotation was conducted on the perceived needs for 33 career development programs.

According to Walsh and Beze (2001), factor analysis is used for investigating the underlying structure or basic dimensions of a set of variables, reducing a set of variables to a smaller one, and providing evidence to support the construct validity of a measuring instrument. Hence, responses on all 33 career development program needs were subjected to factor analysis to assess which items were intercorrelated, to establish the validity, and to explore the underlying constructs in the perceived needs for 33 items. The items for both subscales (career development program needs for current positions and career development program needs for future positions) were analyzed using Principle Components Analysis. Factors with eigenvalues greater than 1.0 were retained. The initial factors were rotated with a Varimax procedure for interpretation. An item loading criterion of .30 was used to select which items were interpretable (Gorsuch, 1983; Tinsley & Tinsley, 1987). The reliabilities of the resulting factors which emerged were established utilizing an Alpha Internal Consistency estimate of Cronbach's Alpha via the reliability option of SPSS V. 12.0.

Factor Identification in Regards to Employees' Career Development Program Needs for

Current Position

The items in regard to current career development program needs were analyzed using a principle factor analysis with Varimax rotation. Six factors were obtained with eigenvalues greater than 1.00 (Table 4.9). The scree plot for all of the factors for current positions is presented in Figure 4.1.

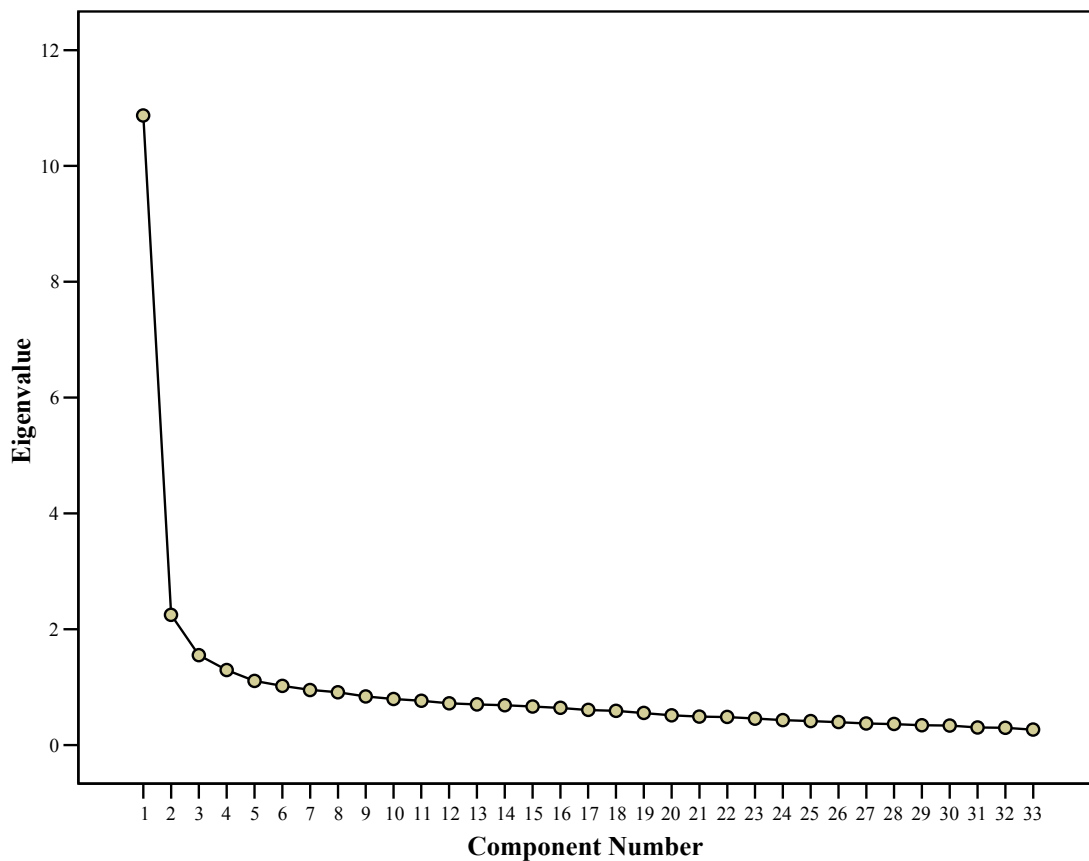
Table 4.9 Item Number, Item, Rotated Factor Loading, and Reliability for Perceived Career Development Program Needs for Current Positions

Item Number	Career Development Program	Loading	Reliability
Factor I: Career Information, Resource, and Assessment (14.54)*			.87
3	Career planning workshops	.74	
6	Employees' career paths design	.74	
2	Career workbooks	.73	
4	Employee career counseling	.72	
7	A career resource center	.62	
10	Psychological testing for vocational interests and work attitudes	.52	
9	Career simulation & assessment centers	.50	
8	A job posting system	.47	
18	Midcareer development programs	.46	
Factor II: Career Programs for Special Target Groups (11.76)*			.84
20	Preretirement counseling workshops	.77	
19	Supervisors workshops on older worker issues	.71	
25	Outplacement programs for terminated employees	.69	
21	Incentives for early retirement	.66	
24	Career counseling training for supervisors	.61	
26	Special programs for women and minorities	.57	
Factor III: Programs to Assist Employed Spouses and Parents (9.18)*			.78
29	Dependent care services	.77	
28	Paid and unpaid parental leave	.76	
30	Job-sharing programs	.51	
31	Work-family programs	.47	
22	Flexible work schedules	.47	
27	Policies that are designed to better accommodate the needs of dual-career couples	.45	

Table 4.9 (continued)

Item Number	Career Development Program	Loading	Reliability
Factor IV: Programs for Development and Professional Growth (7.98)*			.75
15	Mentoring programs	.61	
13	Job rotation programs	.59	
14	Tuition refund programs	.57	
5	Employees' service record	.48	
16	Realistic job previews and introduction of company	.46	
1	On-the job training/ internal training	.45	
23	Special development programs for "fast track" or "high-potential" employees	.38	
Factor V: Programs for Potential Assessment Process (7.56)*			.70
11	Promotability forecasts	.63	
12	Succession planning	.55	
32	Future forums	.46	
33	Career advisers or functional representatives	.41	
Factor VI: Salary Reduction (3.50)*			
17	Salary reduction	.79	

Note: * The percent of total variance accounted for appears in parentheses.

Figure 4.1 The Scree Plot for All the Factors for Current Positions

As can be seen from Figure 4.1, the Eigenvalue dropped below 1.00 after six factors. The six factors accounted for approximately 55 percent of the total variance. The factor titles were assigned by the researcher based upon the content of the items and with reference to prior relevant researchers (Hoffman, 1997, Russell, 1991, and Leibowitz, Farren & Kaye, 1986).

Factor I, which accounted for 14.54 of total variance, had factor loadings that suggest those programs aimed with career information, resource, and assessment (self-assessment). Factor II involves the career development programs for special target groups. Factor III relates to family and work issues. Factor IV characterizes the career programs for professional development and growth. Factor V contains the programs related to the future career planning. Factor VI is categorized as Salary Reduction with a single factor loading of 0.79.

Alpha internal consistency estimates were generated for each factor, using Cronbach's Alpha. The Alpha coefficient was 0.87 for the nine Factor I items; 0.84 for the six Factor II items; 0.78 for the six Factor III items; 0.75 for the seven Factor IV items, and 0.70 for the four Factor V items. The number of items per factor, and the alpha estimate for each factor are exhibited in Table 4.9.

Factor Analysis Two: Employees' Career Development Program Needs for Future Position

A principle component factor extraction with Varimax rotation was performed using the responses from the second subscale which was used to measure career development program needs for future positions. Factors with eigenvalues greater than 1.0 were retained. The scree plot for all of the factors for future positions is given in Figure 4.2.

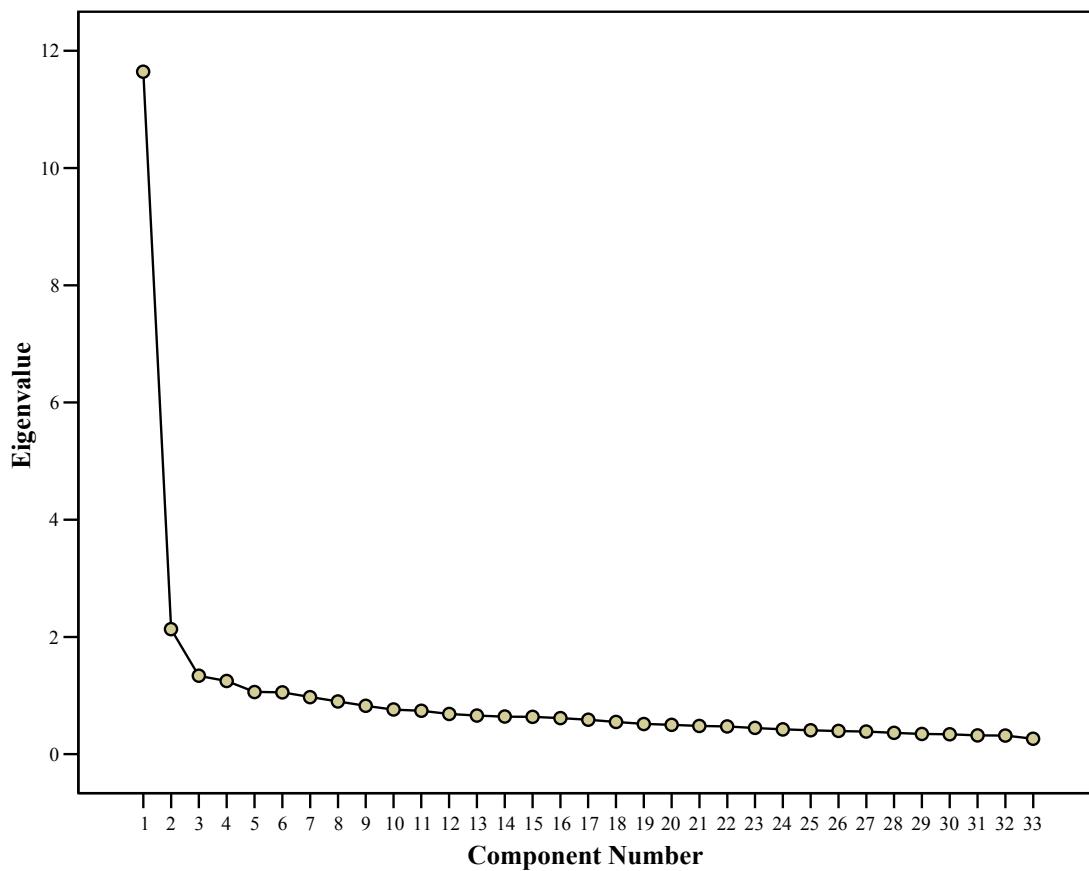
Table 4.10. Item Number, Item, Rotated Factor Loading, and Reliability for Perceived Career Development Program Needs for Future Positions

Item Number	Career Development Program	Loading	Reliability
Factor I: Career Information, Resource, and assessment (14.65)*			.87
3	Career planning workshops	.77	
2	Career workbooks	.73	
4	Employee career counseling	.71	
6	Employees' career paths design	.70	
1	On-the job training/ internal training	.60	
7	A career resource center	.59	
8	A job posting system	.55	
18	Midcareer development programs	.47	
Factor II: Career Programs for Special Target Groups (9.66)*			.78
20	Preretirement counseling workshops	.69	
19	Supervisors workshops on older worker issues	.63	
25	Outplacement programs for terminated employees	.62	
26	Special programs for women and minorities	.56	
21	Incentives for early retirement	.55	
24	Career counseling training for supervisors	.51	
Factor III: Programs for Development and Professional Growth (9.13)*			.80
13	Job rotation programs	.68	
15	Mentoring programs	.60	
12	Succession planning	.56	
14	Tuition refund programs	.48	
16	Realistic job previews and introduction of company	.47	
5	Employees' service record	.47	
23	Special development programs for "fast track" or "high-potential" employees	.41	
Factor IV: Programs for Potential Assessment Process (9.08)*			.83
11	Promotability forecasts	.55	
32	Future forums	.55	
10	Psychological testing for vocational interests and work attitudes	.54	
33	Career advisers or functional representatives	.53	
9	Career simulation & assessment centers	.53	
31	Work-family programs	.51	

Table 4.10 (continued)

Item Number	Career Development Program	Loading	Reliability
Factor V: Programs to Assist Employed Spouses and Parents (8.91)*			.74
29	Dependent care services	.79	
28	Paid and unpaid parental leave	.78	
22	Flexible work schedules	.49	
30	Job-sharing programs	.49	
31	Policies that are designed to better accommodate the needs of dual-career couples	.46	
Factor VI: Salary reduction (3.50)*			
17	Salary reduction	.83	

Note: * Percentage of total variance accounted for appears in parentheses.

Figure 4.2 The Scree Plot for All the Factors for Future Positions

A factor loading criterion of 0.30 was used for selection of the items. The Alpha coefficient (reliabilities) was computed for each factor. An examination of Figure 4.2 shows that the Eigenvalues dropped below 1.00 after six factors. Six factors were extracted and accounted for 55% of the variance. Synthesized versions of the items included in each factor, item loadings, and factor reliabilities are presented in Table 4.10.

The factor titles were assigned by the researcher based upon the content of the items and with reference to relevant researchers (Hoffman, 1997, Russell, 1991, and Leibowitz, Farren & Kaye, 1986).

Factor I, which accounted for 14.65, suggests those programs concerned with career information, resource, and assessment (self-assessment). Factor II involves the career programs for special target groups. Factor III relates to career development programs for development and professional growth. Factor IV characterizes career programs for potential assessment process. Factor V contains the programs related to assist employed spouses and parents. Factor VI is categorized as Salary Reduction with a single factor loading of 0.83. The Alpha coefficients were 0.87 to 0.74.

Research Question 4

Are there differences in the perceptions of career development program needs among the TPC white-collar employees in terms of their Job Function and Job Role for their current positions?

The research hypotheses associated with this research question were formulated to determine self-expressed career development program needs in regards to the respondents' Job Function and Job Role. The hypotheses, restated in the null form were:

- There is no significant interaction between Job Function and Job Role with regard to the perceptions of career development program needs for current positions.
- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Job Function.
- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Job Role.

These research hypotheses were tested using a two-way multivariate analysis of variance (MANOVA). The MANOVA was conducted to detect significant differences in the respondents' perceptions of career development programs needs when grouped by Job Function and Job Role. Therefore, the analysis was a 3 (Job Function: Technology, Management, and Business/Sales) by 3 (Job Role: Employee, Line-Manager, and Upper-Manager) MANOVA with 33 dependent variables (career development programs). The results of the analyses in this section are presented in the following sequences: (1)

perceived career development program needs for current positions by Job Function and Job Role (2) post hoc tests for the main effect of Job Function on perceived career development program needs for current positions, and (3) post hoc tests for the main effect of Job Role on perceived career development program needs for current positions.

To determine the effect of Job Function and Job Role on the 33 dependent variables of perceptions of career development programs, a two-way MANOVA was conducted. Box's Test was first examined to test the homogeneity of variance-covariance matrix. The result indicate that the assumption of equal variances was not tenable, $F(3366, 288047.1)=1.382, p=.000$. Thus, Pillai's Trace was used to test for significance ($p \leq 05$) when homogeneity of variance-covariance cannot be assumed (Mertler & Vannatta, 2002). A summary of the multivariate tests is presented in Table 4.11.

Table 4.11 Summary Multivariate Analysis of Variance* for Measures of Respondents' Perceptions for Career Development Program Needs for Current Positions by Job Function and Job Role

Source	Value	Hypothesis <i>df</i>	Error <i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
Job Function	.085	66	1966	1.316	.047*	.042
Job Role	.226	66	1966	3.800	.000*	.113
Job Function by Job Role	.149	132	3940	1.151	.117	.037

Note: MANOVA *F* ratios are based on Pillai's Trace statistic.

* $p < .05$.

The interaction between the two independent variables (Job Function and Job Role) was examined and was determined to be nonsignificant, Pillai's Trace value = .149, $F(132, 3940)=1.151$, $p=.117$, and a partial $\eta^2=.037$, which indicates a low practical significance. The main effects for Job Function (Pillai's Trace value = .085, $F(66, 1966)=1.316$, $p=.047$, and a partial $\eta^2=.042$, which indicates small effect size) and Job Role (Pillai's Trace value = .226, $F(66, 1966)=3.800$, $p=.000$, and a partial $\eta^2=.113$, which suggests a medium effect size) were both significant. Two follow-up procedures were employed to test the group differences indicated by MANOVA. First, DDA was applied to identify the major differences among the exclusive groups (Job Function and Job Role) in MANOVA with regard to the 33 variables. Second, univariate ANOVA and Ryan-Einot-Gabriel-Welsch F post hoc tests were conducted and adjusted via a Bonferroni approach to control for Type I error across these multiple tests. The results of these investigations on the two main effects, Job Function and Job Role, for the perceived career development program needs for respondents' current positions are reported in the following section.

Post Hoc Tests for the Main Effect of Job Function for Perceived Career Development Program Needs for Current Positions

Follow-Up Procedure 1: DDA

A DDA was performed as a follow-up procedure to distinguish among the three job functions based on linear combinations of the 33 measures. The test of Equality of Group Means showed a significant difference in means on four of the 33 career development programs among the three different job functions, $p < .05$. A significant

difference in the covariance matrices among the three job functions, $p = .000$ was yielded for the Box's M test. The analysis generated two functions as shown in Tables 4.12 and 4.13; however only Function 1 was significant, $\Lambda = .895$, $\chi^2 (66, N=1023) = 110.864$, $p < .000$. This discriminant function accounted for 7.5% of the between-group variability.

Table 4.12 Eigenvalues and Canonical Correlations for Perceived Career Development Program Needs for Current Positions by Job Function

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.081	71.3	71.3	.274
2	.033	28.7	100.0	.178

Table 4.13 Wilks' Lambda for Perceived Career Development Program Needs for Current Positions by Job Function

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 2	.895	110.864	66	.000
2	.968	32.348	32	.450

A summary of the DDA along with the group centroids (the means of the groups on the discriminant functions) is presented in Tables 4.14A and 4.14B. An examination of the standardized discriminant function coefficients and the structure matrix indicates that Item 1 (On-The-Job Training/Internal Training), Item 13 (Job Rotation Programs), Item 14 (Tuition Refund Programs), Item 15 (Mentoring Programs), and Item 33 (Career Advisers or Functional Representatives) were most associated with the function. Group means for the function indicated that respondents in the classification of Management had a group mean of .270, respondents in the classification of Business/Sales had a

group mean of .343, and respondents in the classification of Technology had a group mean of -.269.

Table 4.14A Summary Data for Discriminate Function for Perceived Career Development Program Needs for Current Positions by Job Function

Item/ Career Development Program	Standardized Function Coefficient	Structure Coefficient
1 On-the-job training/ internal training	-.301	-.252*
2 Career workbooks	.060	-.042
3 Career planning workshops	.012	-.051
4 Employee career counseling	.136	.016
5 Employees' service record	.141	.056*
6 Employees' career paths design	.039	-.070
7 A career resource center	-.057	-.128*
8 A job posting system	.015	-.072*
9 Career simulation & assessment centers	.012	-.037
10 Psychological testing for vocational interests and work attitudes	-.032	-.105
11 Promotability forecasts	-.184	-.197*
12 Succession planning	.118	.045
13 Job rotation programs	.511	.301*
14 Tuition refund programs	-.234	-.274*
15 Mentoring programs	-.398	-.263*
16 Realistic job previews and introduction of company	.272	.043
17 Salary reduction	.187	.194*
18 Midcareer development programs	-.206	-.167*
19 Supervisors workshops on older worker issues	-.230	-.022
20 Preretirement counseling workshops	.569	.227
21 Incentives for early retirement	-.014	.105
22 Flexible work schedules	.079	.030
23 Special development programs for "fast track" or "high-potential" employees	.035	-.086*
24 Career counseling training for supervisors	-.190	-.085
25 Outplacement programs for terminated employees	-.138	-.036*
26 Special programs for women and minorities	.314	.084
27 Policies that are designed to better accommodate the needs of dual-career couples	.247	.136*
28 Paid and unpaid parental leave	-.052	-.159*
29 Dependent care services	-.389	-.267

Table 4.14 (continued)

Item/ Career Development Program	Standardized Function Coefficient	Structure Coefficient
30 Job-sharing programs	.254	.107
31 Work-family programs	-.017	-.120*
32 Future forums	-.146	-.187*
33 Career advisers or functional representatives	-.337	-.241*

Note: * Largest absolute correlation between each variable and the first discriminant function.

Table 4.14B Group Centroids for Function 1 (Current Positions by Job Function)

Management	.270
Business/Sales	.343
Technology	-.269

Respondents in the classification of Technology compared to the other two groups were more likely to express career development program needs for Training to Perform the Current Job, Tuition Refund Programs, Mentoring Programs, and Career Advisers or Functional Representatives; however, they were less likely to express needs for Job Rotation Programs than respondents in the classifications of Management and Business.

Follow-Up Procedure 2: Univariate ANOVAs

The follow-up univariate ANOVA results were interpreted using a conservative alpha level ($\alpha=.01$). The possibility of failing to detect true significant difference could be increased if the conservative alpha level involving too many separate individual comparisons was applied (Barker & Barker, 1984). Therefore, rather than using the very conservative Bonferroni adjustment ($\alpha= .05/33=.002$), a relatively conservative alpha level was set at .01. The follow-up data indicated that there were no statistically significant differences among the three job functions in terms of the perceptions of needs

of the 33 career development programs for current positions.

Comparison of Results from DDA and ANOVA for Perceived Career Development Program Needs for Current Positions by Job Function

Table 4.15 Comparison of the Items Obtained from DDA and ANOVA for Perceived Career Development Program Needs for Current Positions by Job Function

	DDA	ANOVA
1	On-the-job training/ internal training	
13	Job rotation programs	
14	Tuition refund programs	
15	Mentoring programs	
33	Career advisers or functional representatives	

Observing Table 4.15, it can be seen that very different post hoc results were obtained for the two post hoc procedures. These differences will be explored in Chapter V.

Post Hoc Tests for the Main Effect of Job Role on Perceived Career Development Program Needs for Current Positions

Follow-Up Procedure 1: DDA

A DDA was conducted to determine the dimensions among which individuals in different job roles differed most conspicuously. The test of Equality of Group Means indicated a significant difference in means on 15 of the 33 career development programs among three different job roles, $p < .05$. A significant difference in the covariance matrices among the three job roles, $p = .000$ was yielded for the Box's M test. The analysis generated two discriminant functions as reported in Tables 4.16 and 4.17;

however only Function 1 was significant, $\Lambda = .759$, $\chi^2 (66, N=1034) = 279.404$, $p < .000$, with only 22.00% of the function variability explained by Job Role.

Table 4.16 Eigenvalues and Canonical Correlations for Perceived Career Development Program Needs for Current Positions by Job Role

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.281	91.1	91.1	.469
2	.028	8.9	100.0	.164

Table 4.17 Wilks' Lambda for Perceived Career Development Program Needs for Current Positions by Job Role

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 2	.759	279.404	66	.000
2	.973	27.675	32	.685

The relevant standardized function coefficients, structure coefficients, and function group centroids are presented in Tables 4.18A and 4.18B. Standardized discriminant function coefficients and the structure matrix revealed that Item 24 (negatively correlated with Career Counseling Training for Supervisors), Item 29 (positive correlated with Dependent Care Services), Item 14 (positive correlated with Tuition Refund Programs), and Item 8 (positive correlated with A Job Posting System) were most associated with the function. Furthermore, referring to the group centroids, the Employees had a function mean of .426, the Line-Manger had a function mean of -.524, and Upper-Manager had a function mean of -.867.

Table 4.18A Summary Data for Discriminate Function for Perceived Career Development Program Needs for Current Positions by Job Role

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
1 On-the-job training/ internal training	.179	.237*
2 Career workbooks	-.101	.102*
3 Career planning workshops	.217	.165*
4 Employee career counseling	.004	.111*
5 Employees' service record	-.232	-.082
6 Employees' career paths design	.012	.119
7 A career resource center	-.127	.101
8 A job posting system	.387	.416*
9 Career simulation & assessment centers	-.007	.071
10 Psychological testing for vocational interests and work attitudes	-.033	.114
11 Promotability forecasts	.096	.069*
12 Succession planning	-.266	-.218
13 Job rotation programs	-.010	.045*
14 Tuition refund programs	.256	.330*
15 Mentoring programs	.161	.188*
16 Realistic job previews and introduction of company	.048	.142*
17 Salary reduction	-.127	-.088
18 Midcareer development programs	.115	.123*
19 Supervisors workshops on older worker issues	-.220	-.184*
20 Preretirement counseling workshops	.033	-.064
21 Incentives for early retirement	-.243	-.172*
22 Flexible work schedules	.084	.201
23 Special development programs for "fast track" or "high-potential" employees	-.212	-.040
24 Career counseling training for supervisors	-.458	-.297*
25 Outplacement programs for terminated employees	.139	.078*
26 Special programs for women and minorities	-.001	.138*
27 Policies that are designed to better accommodate the needs of dual-career couples	.208	.274*
28 Paid and unpaid parental leave	.086	.338*
29 Dependent care services	.409	.465*
30 Job-sharing programs	.064	.163*
31 Work-family programs	-.134	.059
32 Future forums	-.041	.048
33 Career advisers or functional representatives	.143	.187*

Note: * Largest absolute correlation between each variable and the first discriminant function.

Table 4.18B Group Centroids for Function 1 (Current Positions by Job Role)

Employee	.426
Line-Manager	-.524
Upper-Manager	-.867

Comparing the group centroids, the discriminant function separated respondents among the three job roles. The results suggest that: Employees tend to express more needs for career development programs associated with Dependent Care Services, Tuition Refund Programs, and A Job Posting System than Line-Manger and Upper-Manager, whereas they were less likely to express needs for career development programs related to Career Counseling Training for Supervisors. Upper-Managers compared to Employees were less likely to express career development needs for Dependent Care Services, Tuition Refund Programs, and A Job Posting System, while they demonstrated greater needs for Career Counseling Training for Supervisors.

Follow-Up Procedure 2: Univariate ANOVAs

Separate univariate tests were conducted to identify whether there were significant differences in the perceptions of needs among Employees, Line-Managers, and Upper-Managers for each career development program for current positions. As mentioned previously, the testwise alpha in the ANOVA tests was set to .01. Table 4.19 contains the summarized results of those programs which were found to exhibit significant differences in terms of current position needs for those possessing different job roles. The results of the follow-up ANOVAs indicated that there were statistically significant differences among Employee, Line-Manager, and Upper-Manager in the perceptions of needs for the following career development programs:

- On-The Job Training/ Internal Training
- A Job Posting System
- Succession Planning
- Tuition Refund Programs
- Mentoring Programs
- Supervisors Workshops on Older Worker Issues
- Flexible Work Schedules
- Career Counseling Training for Supervisors
- Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples
- Paid and Unpaid Parental Leave
- Dependent Care Services
- Career Advisers or Functional Representatives

Table 4.19 Univariate Analysis of Perceived Career Development Program Needs for Current Positions by Job Role

	Items				Partial Eta Squared
	Career Development Programs	<i>df</i>	<i>F</i>	<i>p</i>	
1	On-the job training/ internal training	2	8.292	.000	.016
8	A job posting system	2	25.159	.000	.047
12	Succession planning	2	8.107	.000	.015
14	Tuition refund programs	2	16.320	.000	.031
15	Mentoring programs	2	5.573	.004	.011
19	Supervisors workshops on older worker issues	2	4.965	.007	.010
22	Flexible work schedules	2	6.487	.002	.012
24	Career counseling training for supervisors	2	13.016	.000	.025

Table 4.19 (continued)

Items	<i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
Career Development Programs				
27 Policies that are designed to better accommodate the needs of dual-career couples	2	10.954	.000	.021
28 Paid and unpaid parental leave	2	17.231	.000	.032
29 Dependent care services	2	31.980	.000	.058
33 Career advisers or functional representatives	2	5.087	.006	.010

A summary of the REGWF results is given in Figure 4.3. Examining the REGWF post hoc results, the following differences were found: Employees perceived career development program needs for On-The Job Training/ Internal Training higher than Line-Manager and Upper Manager. Employees had higher perceived career development program needs for A Job Posting System than did Line-Managers and Upper-Managers. Upper-Managers perceived career development program needs for Succession Planning higher than did Employees and Line-Managers. Of the three groups, employees had higher perceived needs for Tuition Refund Programs than Line-Managers, and the Line-Managers exhibited higher perceived needs than Upper-Managers. Upper-Managers reported lower needs for Mentoring Programs than Employees. Employees perceived lower needs for Supervisors Workshops on Older Worker Issues than Line-Managers and Upper-Manager. Employees' perceived needs for Flexible Work Schedules were significantly higher than Upper-Managers. Employees showed lower perceived career development program needs for Career Counseling Training for Supervisors than Line-Managers and Upper-Managers. Employees' perceived needs for Policies that are

Designed to Better Accommodate the Needs of Dual-Career Couples were significantly higher than Line-Managers and Upper-Managers. Upper-Managers and Line-Managers perceived career development program needs for Paid and Unpaid Parental Leave lower than did employees. Upper-Managers and Line-Managers reported lower perceived needs for Dependent Care Services than did Employees. Employees' perceived needs for Career Advisers or Functional Representatives were significantly higher than Line-Managers and Upper-Managers.

Figure 4.3 Summary of R.E.G.W.F. Tests for Perceived Career Development Program Needs for Current Positions by Job Role

1. On-the job training/ internal training		
Upper-manger (3.90)	Line-manager (4.00)	Employee (4.15)
8 A job posting system		
Upper-manger (3.34)	Line-manager (3.47)	Employee (3.86)
12 Succession planning		
Employee (3.60)	Line-manager (3.73)	Upper-manger (3.96)
14 Tuition refund programs		
Upper-manger (3.81)	Line-manager (3.99)	Employee (4.21)
15 Mentoring programs		
Upper-manger (3.75)	Line-manager (3.88)	Employee (4.00)
19 Supervisors workshops on older worker issues		
Employee (3.55)	Line-manager (3.70)	Upper-manger (3.80)

Figure 4.3 (continued)

22 Flexible work schedules		
Upper-manger (3.24)	Line-manager (3.43)	Employee (3.58)
<hr/>		
24 Career counseling training for supervisors		
Employee (3.52)	Line-manager (3.81)	Upper-manger (3.84)
<hr/>		
27 Policies that are designed to better accommodate the needs of dual-career couples		
Upper-manger (3.55)	Line-manager (3.60)	Employee (3.85)
<hr/>		
28 Paid and unpaid parental leave		
Upper-manger (3.21)	Line-manager (3.21)	Employee (3.61)
<hr/>		
29 Dependent care services		
Upper-manger (2.96)	Line-manager (3.02)	Employee (3.56)
<hr/>		
33 Career advisers or functional representatives		
Upper-manger (3.42)	Line-manager (3.49)	Employee (3.65)
<hr/>		

Note: Groups connected by a common line are not significantly different from each other.
The value in the parentheses represents the mean of each group.

Comparison of Results from DDA and ANOVA for Perceived Career Development Program Needs for Current Positions by Job Role

Table 4.20 Comparison of the Items Obtained from DDA and ANOVA for Perceived Career Development Program Needs for Current Positions by Job Role

DDA		ANOVA	
		1	On-the job training/ internal training
8	A job posting system	8	A job posting system
		12	Succession planning
14	Tuition refund programs	14	Tuition refund programs
		15	Mentoring programs
		19	Supervisors workshops on older worker issues
		22	Flexible work schedules
24	Career counseling training for supervisors	24	Career counseling training for supervisors
		27	Policies that are designed to better accommodate the needs of dual-career couples
		28	Paid and unpaid parental leave
29	Dependent care services	29	Dependent care services
		33	Career advisers or functional representatives

Observing Table 4.20, one can ascertain that the ANOVA post hoc procedure resulted in 12 significant differences and four items had high weights using DDA. Only 4 items were common to the two sets. The differences in these two sets of results will be examined in Chapter V.

Research Question 5

Are there differences in the perceived career development program needs among the TPC white-collar employees in terms of their Job Function and Job Role for their future positions?

The research hypotheses associated with this research question were formulated to determine self-expressed career development program needs in regards to respondents' Job Function and Job Role for their future positions. The hypotheses, restated in the null form were:

- There is no significant interaction between Job Function and Job Role with regard to the perceptions of career development program needs for future positions.
- There are no significant differences in responses with regard to perception of career development program needs for future positions for respondents who differ in terms of Job Function.
- There are no significant differences in responses with regard to perception of career development program needs for future positions for respondents who differ in terms of Job Role.

A two-way multivariate analysis of variance (MANOVA) was performed to test these research hypotheses. The MANOVA was used to detect significant differences in the respondents' perceptions of career development programs needs when grouped by Job Function and Job Role. Therefore, the analysis was a 3 (Job Function: Technology, Management, and Business/Sales) by 3 (Job Role: Employee, Line-Manager, and Upper-Manager) MANOVA with 33 dependent variables (career development programs). The

results of the analyses in this section are presented in the following sequence: (1) the career development program needs for future position by Job Function and Job Role (2) post hoc tests for the main effect of Job Function on perceptions of career development program needs for future positions, and (3) post hoc tests for the main effect of Job Role on perceived career development program needs for future positions

A 3×3 between-groups multivariate analysis of variance was performed to detect the significant differences between Job Function (Technology, Management, and Business/Sales) and Job Role (Employees, Line-Managers, and Upper-Managers) in the perceptions of needs of the 33 career development programs in terms of future positions. The Box's Test was examined to evaluate the assumption of homogeneity of variances-covariances. The result indicated that the assumption of equal variances is in doubt, $F(3366, 251985.5)=1.378, p=.000$. Thus, Pillai's Trace was used to test for global significance ($p \leq .05$). A summary of the multivariate tests is presented in Table 4.21.

Table 4.21 Summary Multivariate Analysis of Variance for Measures of Respondents' Perceptions of Career Development Program Needs for Future Positions by Job Function and Job Role

Source	Hypothesis			<i>F</i>	<i>p</i>	Partial Eta Squared
	Value	<i>df</i>	Error <i>df</i>			
Job Function	.101	66	1850	1.487	.007*	.050
Job Role	.216	66	1850	3.391	.000*	.108
Job Function by Job Role	.143	132	3708	1.042	.356	.036

Note: MANOVA *F* ratios are based on Pillai's Trace statistic.

* $p < .05$.

With the use of Pillai's Trace criterion, the perceptions of career development program needs for future positions were significantly affected by both Job Function,

(Pillai's Trace value = .101, $F(66, 1850)=1.487$, $p=.007$, and a partial $\eta^2=.050$, which indicates an almost moderate level of practical significance), and Job Role, (Pillai's Trace value = .216, $F(66, 1850)=3.391$, $p=.000$, and a partial $\eta^2=.108$, which indicates a moderate level of practical significance), but not by their interaction, (Pillai's Trace value = .143, $F(132, 3708)=1.042$, $p=.356$, and a partial $\eta^2=.036$, which reflects a low effect size). To investigate the impact of each main effect for the individual dependent variables, two follow-up procedures were performed. First, DDA was conducted to identify the major differences among the exclusive groups (Job Function and Job Role) with regard to several variables. Second, univariate ANOVAs and REGWF post hoc tests were applied. The results of the analyses of the two main effects, Job Function and Job Role, for respondents' perceptions of career development program needs for their future position are respectively presented in the following section.

Post Hoc Tests for the Main Effect of Job Function on Perceptions of Career Development Program Needs for Future Positions

Follow-Up Procedure 1: Discriminant Analysis

A DDA was performed as a follow-up procedure to distinguish among the three job functions based on linear combinations of the 33 measures. In testing the significance of the equality of means for each discriminating variable, three of the 33 independent variables showed differences in the means of the variables for the three job functions at $p < .05$. There was a significant difference in the covariance matrices among the three job functions, $p = .000$ for the Box's M test. Two functions were generated from the analysis as displayed in Table 4.22 and 4.23; however only Function 1 was significant, $\Lambda = .894$,

χ^2 (66, N=965)= 106.164, $p = .001$. This discriminant function accounted for 7.5% of the between-group variability.

Table 4.22 Eigenvalues and Canonical Correlations for Perceived Career Development Program Needs for Future Positions by Job Function

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.077	66.2	66.2	.267
2	.039	33.8	100.0	.194

Table 4.23 Wilks' Lambda for Perceived Career Development Program Needs for Future Positions by Job Function

Test of Function(s)	Wilks' Lambda	Chi-square	<i>df</i>	Sig.
1 through 2	.894	106.164	66	.001
2	.962	36.316	32	.274

A summary of the discriminant analysis along with the group centroids (the means of the groups on the discriminant functions) is given in Tables 4.24A and 4.24B. An examination of the standardized discriminant function coefficients and the structure matrix indicated that Item 13 (Job Rotation Programs), Item 14 (Tuition Refund Programs), and Item 33 (Career Advisers or Functional Representatives) can be identified as the most important distinguishing variables for group differences. The assessment of the group centroids in the first function indicated that the centroid for the Management group was -.085, for the Business/Sales group was -.504, and for the Technology group was .226. An examination of the distance of the group centroids showed that the first function differentiated between the Business/Sales group and the other two groups.

Table 4.24A Summary Data for Discriminate Function on Perceived Career Development Program Needs for Future Positions by Job Function

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
1 On-the-job training/ internal training	.251	.216*
2 Career workbooks	-.139	.053
3 Career planning workshops	-.038	.137*
4 Employee career counseling	.036	.135*
5 Employees' service record	-.087	.059
6 Employees' career paths design	.063	.187*
7 A career resource center	-.011	.136*
8 A job posting system	-.079	.114*
9 Career simulation & assessment centers	.183	.203*
10 Psychological testing for vocational interests and work attitudes	-.025	.160*
11 Promotability forecasts	.076	.178*
12 Succession planning	-.118	.006
13 Job rotation programs	-.678	-.360*
14 Tuition refund programs	.288	.270*
15 Mentoring programs	.229	.158
16 Realistic job previews and introduction of company	-.223	-.002
17 Salary reduction	-.063	-.077
18 Midcareer development programs	.267	.268*
19 Supervisors workshops on older worker issues	.249	.228*
20 Preretirement counseling workshops	-.290	.007
21 Incentives for early retirement	.146	.138
22 Flexible work schedules	.076	.112
23 Special development programs for "fast track" or "high-potential" employees	-.245	.026
24 Career counseling training for supervisors	.343	.230*
25 Outplacement programs for terminated employees	-.023	.047
26 Special programs for women and minorities	-.445	-.121

Table 4.24A (continued)

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
27 Policies that are designed to better accommodate the needs of dual-career couples	-.079	-.037
28 Paid and unpaid parental leave	.024	.081
29 Dependent care services	.244	.159
30 Job-sharing programs	-.453	-.161*
31 Work-family programs	.042	.170*
32 Future forums	.174	.270*
33 Career advisers or functional representatives	.329	.295*

Note: * Largest absolute correlation between each variable and the first discriminant function.

Table 4.24B Group Centroids for Function 1 (Future Positions by Job Function)

Management	-.085
Business/Sales	-.504
Technology	.226

Respondents who were classified as Technology compared to the other two groups were more likely to express career development program needs for Tuition Refund Programs and Career Advisers or Functional Representatives. On the contrary, they were less likely to express needs for Job Rotation Programs than respondents who were classified as Business/Sales and Management.

Follow-Up Procedure 2: Univariate ANOVAs

A univariate ANOVA was conducted to determine whether there was a significant difference in perceptions of needs among the three job functions for the 33 career development programs. A conservative alpha level was set at .01. Table 4.25 contains the summarized results of the two programs which were found to exhibit significant differences in terms of perceived career development program needs for future positions

for those respondents in different job functions.

Table 4.25 Univariate Analysis of Perceived Career Development Program Needs for Future Positions by Job Function

Item/ Career Development Program	<i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
13 Job rotation programs	2	4.800	.008*	.010
29 Dependent care services	2	4.712	.009*	.010

Note: * $p < .05$.

Results from univariate ANOVAs revealed that there were statistically significant differences among the three job functions in the perceptions of needs for only two career development programs: Job Rotation Programs ($F(2, 962)=4.800$, $p=.008$, partial $\eta^2=0.10$, which indicates a moderate strength of association) and Dependent Care Services ($F(2, 962)=4.712$, partial $\eta^2=0.10$, which indicates a moderate level of effect size). The summary of the REGWF results is exhibited in Figure 4.4.

Figure 4.4 Summary of R.E.G.W.F. Tests for Perceived Career Development Program Needs for Future Positions by Job Function

13 Job rotation programs		
Technology (3.84)	Management (3.95)	Business/Sales (4.07)
<hr/>		
29 Dependent care services		
Management (3.17)	Business/Sales (3.34)	Technology (3.42)
<hr/>		

Note: Groups connected by a common line are not significantly different from each other. The value in the parentheses represents the mean of each group.

An examination of post hoc results revealed that the respondents who were in the

Job Function classified as Business/Sales perceived career development program needs for Job Rotation Services higher than the respondents who were in the Job Function classified as Technology. In addition, the respondents who were in the Job Function of Management perceived career development program needs for Dependent Care Services lower than the respondents who were in the Job Function of Technology.

Comparison of Results from DDA and ANOVA for Perceived Career Development Program Needs for Future Positions by Job Function

Table 4.26 Comparison of the Items Obtained from DDA and ANOVA for Perceived Career Development Program Needs for Future Positions by Job Function

DDA		ANOVA	
13	Job rotation programs	13	Job rotation programs
14	Tuition refund programs		
		29	Dependent care services
33	Career advisers or functional representatives		

Job Rotation Programs were identified as being important by DDA and statistically significantly by ANOVA (see Table 4.26). The other procedure differences will be examined in Chapter V.

Post Hoc Tests for the Main Effect of Job Role on Perceived Career Development Program Needs for Future Positions

Follow-Up Procedure 1: Discriminant Analysis

A DDA was conducted as a follow-up procedure to distinguish among the three job roles based on linear combinations of the 33 measures. The test of Equality of Group Means revealed significant differences in means on 15 of the 33 career development

programs among the three different job roles, $p < .05$. A significant difference in the covariance matrices among the three job roles, $p = .000$ was yielded for the Box's M test. The analysis generated two functions as exhibited in Tables 4.27 and 4.28; however only Function 1 was significant, $\Lambda = .784$, $\chi^2(66, N=1034) = 232.399$, $p < .000$, with 18.66% of the function variability explained by Job Role.

Table 4.27 Eigenvalues and Canonical Correlations for Perceived Career Development Program Needs for Future Positions by Job Role

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.229	86.1	86.1	.432
2	.037	13.9	100.0	.189

Table 4.28 Wilks' Lambda for Perceived Career Development Program Needs for Future Positions by Job Role

Test of Function(s)	Wilks' Lambda	Chi-square	<i>df</i>	Sig.
1 through 2	.784	232.399	66	.000
2	.964	34.881	32	.333

A summary of the DDA along with the group centroids (the means of the groups on the discriminant functions) is reported in Tables 4.29A and 4.29B. Standardized discriminant function coefficients and the structure matrix revealed that Item 8 (A Job Posting System), Item 18 (Midcareer Development Programs), Item 27 (Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples), Item 28 (Paid and Unpaid Parental Leave), and Item 29 (Dependent Care Services) were most associated with the function. Group means for the function indicated that Employees had a group mean of .392, Line-Manager had a group mean of -.499, and Upper-Managers had a group mean of -.724.

Table 4.29A Summary Data for Discriminate Function on Perceived Career Development Program Needs for Future Positions by Job Role

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
1 On-the-job training/ internal training	.169	.233
2 Career workbooks	-.005	.143*
3 Career planning workshops	.075	.143
4 Employee career counseling	.018	.161*
5 Employees' service record	-.296	-.031
6 Employees' career paths design	-.088	.106
7 A career resource center	-.133	.117
8 A job posting system	.440	.434*
9 Career simulation & assessment centers	.177	.156*
10 Psychological testing for vocational interests and work attitudes	-.059	.147
11 Promotability forecasts	.082	.110*
12 Succession planning	-.329	-.128*
13 Job rotation programs	-.027	.067
14 Tuition refund programs	.267	.343
15 Mentoring programs	.172	.231
16 Realistic job previews and introduction of company	.111	.202
17 Salary reduction	-.129	-.044
18 Midcareer development programs	.158	.213*
19 Supervisors workshops on older worker issues	-.292	-.080
20 Preretirement counseling workshops	.145	.043
21 Incentives for early retirement	-.179	-.055
22 Flexible work schedules	.047	.241
23 Special development programs for "fast track" or "high-potential" employees	-.259	-.025
24 Career counseling training for supervisors	-.310	-.168
25 Outplacement programs for terminated employees	-.066	.054
26 Special programs for women and minorities	-.076	.138
27 Policies that are designed to better accommodate the needs of dual-career couples	.276	.312*
28 Paid and unpaid parental leave	.223	.444*
29 Dependent care services	.381	.503*
30 Job-sharing programs	.019	.190*
31 Work-family programs	-.061	.130*
32 Future forums	-.124	.044
33 Career advisers or functional representatives	.207	.236

Note: * Largest absolute correlation between each variable and the first discriminant function.

Table 4.29B Group Centroids for Function 1 (Future Positions by Job Role)

Employee	.392
Line-Manager	-.499
Upper-Manager	-.724

Employees showed higher perceived career development program needs for A Job Posting System, Midcareer Development Programs, Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples, Paid and Unpaid Parental Leave, and Dependent Care Services than Line-Managers and Upper-Managers, whereas, Upper-Managers showed lower perceived career development needs for those programs than Line-Managers and Employees.

Follow-Up Procedure 2: Univariate ANOVAs

To determine whether the three job roles yielded statistically significant differences in perceptions of needs for each career development program, follow-up univariate ANOVAs were performed. The alpha level was adjusted to .01. Table 4.30 contains the summarized results of those programs which were found to exhibit significant difference in terms of perceived career development program needs for future positions for those respondents possessing different job roles.

The univariate ANOVA results indicated that individuals in different Job Role yield significant differences in perceptions of needs for the following 11 career development programs:

- On-The Job Training/ Internal Training
- A Job Posting System
- Tuition Refund Programs

- Mentoring Programs
- Realistic Job Previews and Introduction Of Company
- Midcareer Development Programs
- Flexible Work Schedules
- Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples
- Paid and Unpaid Parental Leave
- Dependent Care Services
- Career Advisers or Functional Representatives

Table 4.30 Univariate Analysis of Perceived Career Development Program Needs for Future Positions by Job Role

	Item/ Career Development Program	<i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
1	On-the job training/ internal training	2	7.296	.001	.015
8	A job posting system	2	21.125	.000	.042
14	Tuition refund programs	2	16.101	.000	.032
15	Mentoring programs	2	8.967	.000	.018
16	Realistic job previews and introduction of company	2	5.320	.005	.011
18	Midcareer development programs	2	5.193	.006	.011
22	Flexible work schedules	2	8.148	.000	.016
27	Policies that are designed to better accommodate the needs of dual-career couples	2	10.899	.000	.022
28	Paid and unpaid parental leave	2	22.035	.000	.043
29	Dependent care services	2	28.334	.000	.055
33	Career advisers or functional representatives	2	7.543	.001	.015

In order to determine which Job Role was significantly different, a follow-up REGWF post hoc test was conducted. The REGWF results are summarized in Figure 4.5. The following differences were found: Employees perceived higher career development program needs than did Line-Managers and Upper-Managers for the following programs: A Job Posting System, Midcareer Development Programs, Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples, Paid and Unpaid Parental Leave, and Dependent Care Services. Upper-Managers' needs for On-The Job Training/Internal Training, Mentoring Programs, Flexible Work Schedules, and Career Advisers or Functional Representatives were significantly lower than Line-Managers and Employees. Employees indicated higher perceived career development program needs for Realistic Job Previews and Introduction of Company than Upper-Managers. Similar to the results for current career development program needs, Employees exhibited higher perceived needs for Tuition Refund Programs than did Line-Managers, and the Line-Managers perceived higher needs than Upper Managers.

Figure 4.5 Summary of R.E.G.W.F. Tests for Perceived Career Development Program Needs for Future Positions by Job Role

1. On-the job training/ internal training		
Upper-manger (3.83)	Line-manager (4.00)	Employee (4.11)
8 A job posting system		
Upper-manger (3.50)	Line-manager (3.63)	Employee (3.96)
14 Tuition refund programs		
Upper-manger (3.76)	Line-manager (4.03)	Employee (4.20)

Figure 4.5 (continued)

15 Mentoring programs		
Upper-manger (3.66)	Line-manager (3.91)	Employee (3.99)
16 Realistic job previews and introduction of company		
Upper-manger (3.65)	Line-manager (3.80)	Employee (3.91)
18 Midcareer development programs		
Upper-manger (3.84)	Line-manager (3.92)	Employee (4.06)
22 Flexible work schedules		
Upper-manger (3.29)	Line-manager (3.54)	Employee (3.67)
27 Policies that are designed to better accommodate the needs of dual-career couples		
Upper-manger (3.58)	Line-manager (3.67)	Employee (3.89)
28 Paid and unpaid parental leave		
Upper-manger (3.20)	Line-manager (3.27)	Employee (3.68)
29 Dependent care services		
Upper-manger (2.98)	Line-manager (3.04)	Employee (3.55)
33 Career advisers or functional representatives		
Upper-manger (3.36)	Line-manager (3.56)	Employee (3.68)

Note: Groups connected by a common line are not significantly different from each other. The value in the parentheses represents the mean of each group.

Comparison of Post Hoc Results from DDA and ANOVA for Perceived Career Development Program Needs for Future Positions by Job Role

Table 4.31 Comparison of the Items Obtained from DDA and ANOVA for Perceived Career Development Program Needs for Future Positions by Job Role

DDA		ANOVA	
		1	On-the job training/ internal training
8	A job posting system	8	A job posting system
		14	Tuition refund programs
		15	Mentoring programs
		16	Realistic job previews and introduction of company
		18	Midcareer development programs
		22	Flexible work schedules
27	Policies that are designed to better accommodate the needs of dual-career couples	27	Policies that are designed to better accommodate the needs of dual-career couples
28	Paid and unpaid parental leave	28	Paid and unpaid parental leave
29	Dependent care services	29	Dependent care services
		33	Career advisers or functional representatives

The four items determined to have high weighting using DDA were also detected as being significant via ANOVA. The comparison of the two post hoc results is given in Table 4.31. Since other career development programs were obtained by ANOVA as being significant, the difference in number and nature of the obtained variables will be discussed in Chapter V.

Research Question 6

Are there significant differences among perceptions of career development program needs for individuals who possess different demographic variables of Gender, Age, and Education?

The research hypotheses associated with this research question were formulated to determine self-expressed career development program needs in regards to respondents' Gender, Age, and Education. The hypotheses, restated in the null form were:

- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Gender.
- There are no significant differences in responses with regard to perceptions of career development program needs for future positions for respondents who differ in terms of Gender.
- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Age.
- There are no significant differences in responses with regard to perceptions of career development program needs for future positions for respondents who differ in terms of Age.
- There are no significant differences in responses with regard to perceptions of career development program needs for current positions for respondents who differ in terms of Education.

- There are no significant differences in responses with regard to perceptions of career development program needs for future positions for respondents who differ in terms of Education.

These research question hypotheses would best be addressed using MANOVA for a three-factor factorial of Gender (2 levels) by Age (5 levels) by Education (4 levels). This type of analysis was originally proposed. However, when the data were cast into this three-way arrangement (see Table 4.32), many of the cells exhibited frequency counts that would severely hinder the statistical validity of any obtained estimates.

Table 4.32 Crosstabulation of Gender by Age by Education

Gender	Age	Education				Total
		High school or below	vocational school	Bachelors	Master or above	
Male	21-30	1	4	40	4	49
	31-40	10	36	79	44	169
	41-50	26	170	183	65	444
	51-60	32	175	121	13	341
	60 or above	4	34	12	0	50
Total		73	419	435	126	1053
Female	21-30	0	0	13	2	15
	31-40	6	13	57	13	89
	41-50	6	33	39	8	86
	51-60	13	18	12	1	44
	60 or above	1	1	0	0	2
Total		26	65	121	24	236

A statistical guideline of at least 30 in a cell would not have been achieved in 26 of the 40 cells. Any significant interactions and subsequent Simple Main Effects (SMEs) would only compound the problem since the cells would be further fractionated.

Therefore, a conservative approach to investigating this question was to consider each demographic variable separately. This was deemed to be a more prudent means of analyzing this data. This technique was applied to the perceptions in terms of current and future positions. Separate MANOVAs for Gender, Age and Education are presented and follow-up tests to the MANOVAs, including DDA and univariate ANOVAs were conducted if there were any significant differences.

Gender

Perceived Career Development Program Needs for Current Positions

The perceptions of needs for career development programs for an individual's current position in terms of Gender were subjected to a One-way MANOVA. A summary of the global tests is presented in Table 4.33.

Table 4.33 Summary Multivariate Analysis of Variance for Measures of Respondents' Perceptions of Career Development Program Needs for Current Positions in Terms of Gender

	Hypothesis					Partial Eta Squared
	Value	<i>df</i>	Error <i>df</i>	<i>F</i>	<i>p</i>	
Pillai's Trace	.096	33	971	3.118	.000*	.096
Wilks' Lambda	.904	33	971	3.118	.000*	.096
Hotelling's Trace	.106	33	971	3.118	.000*	.096
Roy's Largest Root	.106	33	971	3.118	.000*	.096

Note: * $p < .05$.

Observing Table 4.17, one can ascertain that a significant effect was obtained for Gender. A significant difference was yielded for Box's Test [$F(561, 330784.9) = 1.40$, $p = .000$]. Pillai's Trace of .096, which was converted to an F ratio of 3.118, was significant beyond the .001 level. The partial η^2 of .096 reflects a moderate level of

strength of association. Since an overall MANOVA effect was found, follow-up tests to MANOVA were employed using DDA, and univariate ANOVA with an α level of .01.

Follow-Up Procedure 1: DDA

A DDA was performed as the first follow-up procedure to differentiate between Gender groups based on linear combinations of the 33 measures. In testing the significance of the Equality of Means for each discriminating variable, 5 of the 33 career development programs showed differences in the means of the variables for Gender at $p < .05$. There was a significant difference in the covariance matrices among different age levels, $p = .000$ for the Box's M test. There was the possibility of only one discriminant function since only two groups were examined in a one-way MANOVA (Stevens, 2002). The one discriminant function yielded statistical significance and had an Eigenvalue of .106 ($\Lambda = .904$, $\chi^2(33, N=1005) = 99.353$, $p = .000$) as shown in Tables 4.34 and 4.35.

Table 4.34 Eigenvalues and Canonical Correlations for Perceived Career Development Program Needs for Current Positions in Terms of Gender

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.106	100.0	100.0	.310

Table 4.35 Wilks' Lambda for Perceived Career Development Program Needs for Current Positions in Terms of Gender

Test of Function(s)	Wilks' Lambda	Chi-square	<i>df</i>	Sig.
1	.904	99.353	33	.000

A summary of the discriminant analysis along with the group centroids is reported in Tables 4.36A and 4.36B. An examination of the standardized discriminant function coefficients and the structure matrix shows that Item 13 (Job Rotation Programs), Item 26 (Special Programs for Women and Minorities), and Item 27 (Policies That are Designed to Better Accommodate the Needs of Dual-Career Couples) can be identified as the most important distinguishing variables for group differences for Function 1. Generally, the function discriminated well between the two groups as demonstrated by a group centroid of $-.152$ for Males and $.694$ for Females.

Table 4.36A Summary Data for Discriminate Function for Perceived Career Development Program Needs for Current Positions in Terms of Gender

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
1 On-the-job training/ internal training	.027	.053
2 Career workbooks	-.051	.038
3 Career planning workshops	-.063	.006
4 Employee career counseling	.264	.132
5 Employees' service record	.119	.103
6 Employees' career paths design	-.094	.035
7 A career resource center	-.047	.013
8 A job posting system	.235	.208
9 Career simulation & assessment centers	-.197	-.056
10 Psychological testing for vocational interests and work attitudes	.130	.042
11 Promotability forecasts	-.252	-.130
12 Succession planning	-.157	-.151
13 Job rotation programs	.334	.239
14 Tuition refund programs	-.102	.067
15 Mentoring programs	.001	.045
16 Realistic job previews and introduction of company	-.054	-.044
17 Salary reduction	.105	.141
18 Midcareer development programs	.286	.162
19 Supervisors workshops on older worker issues	-.338	-.172
20 Preretirement counseling workshops	-.170	-.166

Table 4.36A (continued)

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
21 Incentives for early retirement	-.134	-.148
22 Flexible work schedules	.298	.240
23 Special development programs for “fast track” or “high-potential” employees	-.138	-.098
24 Career counseling training for supervisors	.054	-.077
25 Outplacement programs for terminated employees	-.490	-.139
26 Special programs for women and minorities	.824	.421
27 Policies that are designed to better accommodate the needs of dual-career couples	.215	.321
28 Paid and unpaid parental leave	-.007	.095
29 Dependent care services	-.071	.116
30 Job-sharing programs	-.115	-.058
31 Work-family programs	-.161	-.110
32 Future forums	.137	.083
33 Career advisers or functional representatives	-.084	-.037

Table 4.36B Group Centroids for Function 1 (Current Positions in Terms of Gender)

Male	-.152
Female	.694

The differences between Gender for the career development program needs can be interpreted as: Female respondents showed stronger needs for career development programs associated with Special Programs for Women and Minorities, Policies That are Designed to Better Accommodate the Needs of Dual-Career Couples, and Job Rotation Programs.

Follow-Up Analysis 2: Univariate Analysis

A summary of the univariate analysis post hoc procedure is presented in Table 4.41.

Differences between Females and Males for each of the 33 programs were judged using an α level of .01. Significant differences were obtained for Items 26 and 27. Item 26 dealt with Career Programs for Women and Minorities and Item 27 was concerned with Policies That are Designed to Better Accommodate the Needs of Dual-Career Couples. A summary of the univariate tests and Item means for the levels of Gender for these two programs are presented in Table 4.37.

Table 4.37 Summary Univariate Analyses and Means of Perceived Career Development Program Needs for Current Positions in Terms of Gender

Item/ Career Development Program	<i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared	Mean	
					Female	Male
26 Career programs for women and minorities	1	18.827	.000*	.018	3.80	3.45
27 Policies that are designed to better accommodate the needs of dual-career couples	1	10.351	.001*	.010	3.94	3.70

Note: * $p < .01$.

Females exhibited a significantly higher mean than Males for both Items 26 and 27. Females and Males exhibited equal means for the other 31 programs. All of the strength of association measurements was judged to be small.

Comparison of Results from DDA and ANOVA for Perceived Career Development Program Needs for Current Positions in Terms of Gender

Table 4.38 Comparison of the Items Obtained from DDA and ANOVA for Perceived Career Development Program Needs for Current Positions in Terms of Gender

DDA		ANOVA	
13	Job rotation programs		
26	Career programs for women and minorities	26	Career programs for women and minorities
27	Policies that are designed to better accommodate the needs of dual-career couples	27	Policies that are designed to better accommodate the needs of dual-career couples

The only difference between the results of the 2 post hoc procedures was in terms of Job Rotation Programs for DDA. The two procedures were judged to be equivalent.

The comparison of the two post hoc results is given in Table 4.38.

Perceived Career Development Program Needs for Future Positions

The perceptions of needs for career development programs for an individual's future position in terms of Gender were analyzed using a One-way MANOVA. A summary of the global tests is displayed in Table 4.39.

Table 4.39 Summary Multivariate Analysis of Variance for Measures of Respondents' Perceptions of Career Development Program Needs for Future Positions in Terms of Gender

	Hypothesis			<i>F</i>	<i>p</i>	Partial Eta Squared
	Value	<i>df</i>	Error <i>df</i>			
Pillai's Trace	.095	33	915	2.905	.000*	.095
Wilks' Lambda	.905	33	915	2.905	.000*	.095
Hotelling's Trace	.105	33	915	2.905	.000*	.095
Roy's Largest Root	.105	33	915	2.905	.000*	.095

Note: * $p < .05$.

Examining Table 4.39, it may be noticed that a significant effect was obtained for Gender. A significant difference was yielded for Box's Test [$F(561,283594.7) = 1.474$, $p = .000$]. Pillai's trace of .095, which converts to a F ratio of 2.905, was significant beyond the .001 level. The partial η^2 of .095 reflects a moderate effect size. Since an overall MANOVA effect was found, follow-up tests to MANOVA were employed using DDA, and univariate ANOVA with an α level of .01.

Follow-Up Procedure 1: DDA

A DDA was performed as the first follow-up procedure to distinguish between Gender groups based on linear combinations of the 33 measures. In testing the significance of the Equality of Means for each discriminating variable, 4 of the 33 career development programs showed differences in the means of the variables for Gender at $p < .05$. There was a significant difference in the covariance matrices among different age levels, $p = .000$ for the Box's M test. There was the possibility of only one discriminant function since only two groups were tested in a one-way MANOVA (Stevens, 2002). The one discriminant function was found to be statistically significant and had an Eigenvalue of .105 ($\Lambda = .905$, $\chi^2(33, N = 949) = 92.700$, $p = .000$) as shown in Tables 4.40 and 4.41.

Table 4.40 Eigenvalues and Canonical Correlations for Perceived Career Development Program Needs for Future Positions in Terms of Gender

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.105	100.0	100.0	.308

Table 4.41 Wilks' Lambda for Perceived Career Development Program Needs for Future Positions in Terms of Gender

Test of Function(s)	Wilks' Lambda	Chi-square	<i>df</i>	Sig.
1	.905	92.700	33	.000

A summary of the discriminant analysis along with the group centroids is given in Tables 4.42A and 4.42B. An examination of the standardized discriminant function coefficients and the structure matrix shows that Item 8 (A Job Posting System), Item 12 (Succession Planning), and Item 26 (Special Programs for Women and Minorities) contributed the most in discriminating Gender groups. Generally, the function discriminated well between the two groups as demonstrated by a group centroid of -.150 for Males and .697 for Females.

Table 4.42A Summary Data for Discriminate Function for Perceived Career Development Program Needs for Future Positions in Terms of Gender

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
1 On-the-job training/ internal training	.080	.077
2 Career workbooks	.002	.022
3 Career planning workshops	-.057	.001
4 Employee career counseling	.245	.121
5 Employees' service record	.073	.009
6 Employees' career paths design	-.122	-.021
7 A career resource center	-.103	-.021
8 A job posting system	.467	.298
9 Career simulation & assessment centers	-.209	-.112
10 Psychological testing for vocational interests and work attitudes	.006	.007
11 Promotability forecasts	-.084	-.138
12 Succession planning	-.592	-.340
13 Job rotation programs	.342	.176
14 Tuition refund programs	-.101	.014
15 Mentoring programs	.020	.027
16 Realistic job previews and introduction of company	-.036	-.054

Table 4.42A (continued)

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
17 Salary reduction	.134	.161
18 Midcareer development programs	.125	.100
19 Supervisors workshops on older worker issues	-.233	-.151
20 Preretirement counseling workshops	.031	-.049
21 Incentives for early retirement	-.100	-.087
22 Flexible work schedules	.165	.162
23 Special development programs for “fast track” or “high-potential” employees	.025	-.073
24 Career counseling training for supervisors	-.076	-.144
25 Outplacement programs for terminated employees	-.477	-.084
26 Special programs for women and minorities	.744	.394
27 Policies that are designed to better accommodate the needs of dual-career couples	.240	.271
28 Paid and unpaid parental leave	.085	.137
29 Dependent care services	-.234	.045
30 Job-sharing programs	.012	.016
31 Work-family programs	-.002	-.053
32 Future forums	.112	.008
33 Career advisers or functional representatives	-.160	-.058

Table 4.42B Group Centroids for Function 1 (Future Positions in Terms of Gender)

Male	-.150
Female	.697

The differences between Gender for the career development program needs can be interpreted as: Female respondents compared to Male respondents are more likely to express needs for career development programs related to Special Programs for Women and Minorities and A Job Posting System. Male respondents show more needs for Succession Planning than Female respondents.

Follow-Up Analysis 2: Univariate Analysis

A summary of the univariate analysis post hoc procedure is given in Table 4.41. Differences between Females and Males for each of the 33 programs were judged using univariate analysis with an α level of .01. Significant differences were noted for Items 8, 12, 26, and 27. Item 8 was in reference to the program of A Job Posting System, Item 12 was in regard to Succession Planning, Items 26 and 27 were the same as described in the current position section. A summary of univariate tests and the item means for these 4 programs are presented in Table 4.43.

Table 4.43 Summary Univariate Analyses and Means of Perceived Career Development Program Needs for Future Positions in Terms of Gender

Item/ Career Development Program	<i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared	Mean	
					Female	Male
8 A job posting system	1	8.836	.003*	.009	4.00	3.77
12 Succession planning	1	11.441	.001*	.012	3.55	3.81
26 Career programs for women and minorities	1	15.548	.000*	.018	3.84	3.53
27 Policies that are designed to better accommodate the needs of dual-career couples	1	5.317	.007*	.010	3.95	3.75

Note: * $p < .01$.

Females displayed significantly higher means than Males for Items 8, 26 and 27. The mean for Males was significantly higher for the program of Succession Planning. All measures of strength of association were judged to be low.

Comparison of Results from DDA and ANOVA for Perceived Career Development Program Needs for Future Positions in Terms of Gender

Table 4.44 Comparison of the Items Obtained from DDA and ANOVA for Perceived Career Development Program Needs for Future Positions in Terms of Gender

DDA		ANOVA	
8	A job posting system	8	A job posting system
12	Succession planning	12	Succession planning
26	Career programs for women and minorities	26	Career programs for women and minorities
		27	Policies that are designed to better accommodate the needs of dual-career couples

Very comparable results were obtained for the two post hoc procedures for the Gender groups (see Table 4.44). The item of Policies that are Designed to Better Accommodate the Needs of Dual-Career Couples as detected by ANOVA was the only difference for the two post hoc techniques.

Age

Perceived Career Development Program Needs for Current Positions

The perceptions of needs for career development programs for an individual's current position in terms of Age were analyzed using a one-way MANOVA. A summary of the global tests are presented in Table 4.45.

Table 4.45 Summary Multivariate Analysis of Variance for Measures of Respondents' Perceptions of Career Development Program Needs for Current Positions in Terms of Age

	Hypothesis		Error <i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
	Value	<i>df</i>				
Pillai's Trace	.427	132	3968.00	3.598	.000*	.107
Wilks' Lambda	.624	132	3938.37	3.757	.000*	.111
Hotelling's Trace	.526	132	3950.00	3.937	.000*	.116
Roy's Largest Root	.344	33	992.00	10.337	.000*	.256

Note: * $p < .05$.

A significant difference was obtained from Box's Test [$F(2244, 99512.089) = 1.409, p = .000$]. From Table 4.45, Pillai's trace of .427, which was converted to an F ratio of 3.589, was significant beyond the .001 level. The partial η^2 of .107 suggests a moderate effect size. Thus, a significant effect for Age was indicated. The differences between the levels of Age were firstly examined using DDA, and secondly probed using ANOVA and REGWF with an α level of .01.

Follow-Up Procedure 1: DDA

A DDA was performed as the first follow-up procedure to distinguish among the different age groups based on linear combinations of the 33 measures. In testing the significance of the Equality of Means for each discriminating variable, 23 of 33 career development programs showed differences in the means of the variables for the five different age levels at $p < .05$. There was a significant difference in the covariance matrices among different age levels, $p = .000$ for the Box's M test. Four canonical discriminant functions were calculated to discriminate among Age as shown in Tables 4.46 and 4.47. Three of the four functions resulted in statistical significance. Function 1 was statistically significant, $\Lambda = .624, \chi^2(132, N=1026) = 453.780, p = .000$. This

discriminant function accounted for 25.60% of the between-group variability. The remaining functions were further tested to identify significant differences across the Age groups. After removing Function 1, Function 2 also showed significance, $\Lambda = .838$, χ^2 (96, $N=1026$) = 177.499, $p = .000$, and accounted for 7.34% of the between-group variability. When both Functions 1 and 2 were removed, Function 3 was also significant, $\Lambda = .904$, χ^2 (62, $N=1026$) = 100.996, $p = .001$, and accounted for 6.71% of the between-group variability.

Table 4.46 Eigenvalues and Canonical Correlations for Perceived Career Development Program Needs for Current Positions in Terms of Age

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.344	65.3	65.3	.506
2	.079	15.0	80.4	.271
3	.072	13.6	94.0	.259
4	.032	6.0	100.0	.175

Table 4.47 Wilks' Lambda for Perceived Career Development Program Needs for Current Positions in Terms of Age

Test of Function(s)	Wilks' Lambda	Chi-square	<i>df</i>	Sig.
1 through 4	.624	474.818	132	.000
2 through 4	.838	177.499	96	.000
3 through 4	.904	100.996	62	.001
4	.969	31.270	30	.402

A summary of the discriminant analysis along with the group centroids is reported in Tables 4.48A and 4.48B. An examination of the standardized discriminant function coefficients and the structure matrix shows that Item 1 (Training to Perform the Current Job), Item 14 (Tuition Refund Programs), Item 28 (Paid and Unpaid Parental Leave),

and Item 8 (A Job Posting System) can be identified as the most important distinguishing variables for group differences for Function 1. Item 15 (Mentoring Programs) and Item 18 (Midcareer Development Programs) were the most important distinguishing variables for group differences for Function 2. Item 29 (Dependent Care Services) and Item 17 (Reducing Salaries) were the strongest variables discriminating among the age groups for Function 3.

Table 4.48A Summary Data for Discriminate Function for Perceived Career Development Program Needs for Current Positions in Terms of Age

Item/Career Development Program	Function 1		Function 2		Function 3	
	c*	s*	c*	s*	c*	s*
1 On-the-job training/ internal training	.235	.429*	-.135	.328	.291	.001
2 Career workbooks	-.108	.198	.353	.117	.039	-.227*
3 Career planning workshops	.059	.173*	-.285	.105	-.058	.000
4 Employee career counseling	-.026	.156	.562	.178	-.149	-.305*
5 Employees' service record	.019	.180	.195	.197*	-.101	-.126
6 Employees' career paths design	.130	.285*	-.480	.113	-.279	.052
7 A career resource center	.000	.206*	-.159	.041	-.117	-.049
8 A job posting system	.279	.444*	.054	.221	.397	.098
9 Career simulation & assessment centers	-.141	.217*	.143	.068	.038	.054
10 Psychological testing for vocational interests and work attitudes	.193	.281*	-.289	.066	-.098	.099
11 Promotability forecasts	-.047	.261*	.028	.093	.249	.140
12 Succession planning	-.032	.197*	-.102	-.140	-.202	.017
13 Job rotation programs	.127	.304*	.163	.241	.193	-.244
14 Tuition refund programs	.358	.458*	.071	.160	.225	.004
15 Mentoring programs	-.159	.159	-.479	-.119	-.034	.265*
16 Realistic job previews and introduction of company	-.193	.135	-.088	-.093	-.182	.016
17 Salary reduction	-.133	.104*	.050	.294*	.308	.149
18 Midcareer development programs	.076	.413*	.576	.056	.241	.031
19 Supervisors workshops on older worker issues	-.145	.107*	.121	.003	.008	-.013
20 Preretirement counseling workshops	-.362	.033	.141	-.078	-.122	-.041
21 Incentives for early retirement	-.316	.016	.193	-.073*	.048	.042
22 Flexible work schedules	.198	.405*	-.046	.050	.095	.102

Table 4.48A (continued)

Item/Career Development Program	Function 1		Function 2		Function 3	
	c*	s*	c*	s*	c*	s*
23 Special development programs for “fast track” or “high-potential” employees	-.026	.244*	-.079	-.078	-.230	-.124
24 Career counseling training for supervisors	.008	.122*	.104	-.042	-.050	.076
25 Outplacement programs for terminated employees	-.072	.080	-.108	.031	.091	.232*
26 Special programs for women and minorities	-.175	.126	-.349	-.066	-.111	.168*
27 Policies that are designed to better accommodate the needs of dual-career couples	.177	.399*	.119	-.085	.050	.113
28 Paid and unpaid parental leave	.246	.535*	-.091	-.259	-.058	.018
29 Dependent care services	.407	.583*	.377	-.525	-.627	-.124
30 Job-sharing programs	-.055	.210	-.290	-.215*	-.087	.180
31 Work-family programs	.005	.257*	.061	-.182	-.134	.006
32 Future forums	.083	.229	-.163	.097	.353	.156
33 Career advisers or functional representatives	-.009	.214	-.126	.113	.132	.304*

Note: * c represents standardized canonical discriminant function coefficients

* s represents structure coefficients

* Largest absolute correlation between each variable and any discriminant function.

Table 4.48B Group Centroids for Function 1, 2, and 3 (Current Positions in Terms of Age)

	Function 1	Function 2	Function 3
21-30	.864	-1.097	-.042
31-40	.838	.184	-.194
41-50	-.043	.110	.208
51-60	-.617	-.118	.017
60 and above	-.996	.073	-1.016

With respect to Function 1, the older respondents tended to express lower needs for career development programs related to Training to Perform the Current Job, Tuition Refund Programs, Paid and Unpaid Parental Leave, and A Job Posting System than younger respondents. With respect to Function 2, the respondents in the age group of 20 to 30 were more likely to express needs for Mentoring Programs than respondents in the

other age groups. Additionally, respondents in age group of 31 and 40 are more likely to perceived stronger needs for Midcareer Development Program than the other age groups.

With respect to Function 3, the younger respondents perceived higher needs for Dependent Care Services than the order respondents.

Follow-Up Analysis 2: Univariate Analysis

A summary of the univariate analysis post hoc procedures is presented in Table 4.49.

Table 4.49 Summary Univariate Analyses of Perceived Career Development Program Needs for Current Positions in Terms of Age

	Item/ Career Development Program	<i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
1	On-the job training/ internal training	4	10.219	.000*	.038
4	Employee career counseling	4	3.381	.009*	.013
6	Employees' career paths design	4	5.515	.000*	.021
7	A career resource center	4	3.362	.010*	.013
8	A job posting system	4	12.956	.000*	.048
10	Psychological testing for vocational interests and work attitudes	4	4.839	.001*	.019
13	Job rotation programs	4	5.013	.001*	.019
14	Tuition refund programs	4	16.714	.000*	.061
18	Midcareer development programs	4	4.006	.003*	.015
20	Preretirement counseling workshops	4	5.347	.000*	.021
21	Incentives for early retirement	4	6.302	.000*	.024
22	Flexible work schedules	4	7.802	.000*	.030
27	Policies that are designed to better accommodate the needs of dual-career couples	4	7.031	.000*	.027
28	Paid and unpaid parental leave	4	17.631	.000*	.065
29	Dependent care services	4	28.626	.000*	.101
32	Future forums	4	4.208	.002*	.016

Note: * $p < .01$.

Significant differences were obtained for 16 of the 33 programs. The REGWF results are summarized in Figure 4.6.

Figure 4.6 Summary of R.E.G.W.F. Tests for Perceived Career Development Program Needs for Current Positions in Terms of Age

1. On-the job training/ internal training				
60 and above (3.73)	51-60 (3.91)	41-50 (4.10)	31-40 (4.23)	21-30 (4.34)
4. Employee career counseling				
51-60 (3.49)	21-30 (3.58)	41-50 (3.66)	60 and above (3.71)	31-40 (3.77)
6. Employees' career paths design				
51-60 (3.62)	60 and above (3.62)	41-50 (3.71)	31-40 (3.89)	21-30 (4.09)
7. A career resource center				
60 and above (3.84)	51-60 (3.85)	41-50 (3.93)	31-40 (4.06)	21-30 (4.17)
8. A job posting system				
60 and above (3.07)	51-60 (3.49)	41-50 (3.69)	31-40 (3.96)	21-30 (4.00)
10. Psychological testing for vocational interests and work attitudes				
51-60 (3.46)	60 and above (3.47)	41-50 (3.61)	31-40 (3.73)	21-30 (3.98)
13. Job rotation programs				
60 and above(3.62)	51-60 (3.76)	41-50 (3.94)	21-30 (3.96)	31-40 (4.07)
14. Tuition refund programs				
60 and above (3.60)	51-60 (3.90)	41-50 (4.09)	31-40 (4.37)	21-30 (4.42)

Figure 4.6 (continued)**18. Midcareer development programs**

60 and above (3.71)	21-30 (3.74)	51-60 (3.82)	41-50 (3.98)	31-40 (4.05)
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20. Preretirement counseling workshops

21-30 (3.30)	31-40 (3.55)	41-50 (3.65)	51-60 (3.83)	60 and above (4.02)
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21. Incentives for early retirement

21-30 (3.32)	31-40 (3.63)	41-50 (3.74)	51-60 (3.94)	60 and above (4.02)
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22. Flexible work schedules

60 and above	51-60	41-50	21-30	31-40
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27. Policies that are designed to better accommodate the needs of dual-career couples

60 and above (3.56)	51-60 (3.58)	41-50 (3.73)	21-30 (3.94)	31-40 (3.97)
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28. Paid and unpaid parental leave

51-60 (3.18)	60 and above (3.33)	41-50 (3.36)	21-30 (3.85)	31-40 (3.89)
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29. Dependent care services

51-60 (3.04)	41-50 (3.16)	60 and above (3.29)	21-30 (3.58)	31-40 (3.97)
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32. Future forums

60 and above (3.38)	41-50 (3.75)	51-60 (3.76)	31-40 (3.88)	21-30 (4.00)
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Note: Groups connected by a common line are not significantly different from each other. The value in the parentheses represents the mean of each group.

Except for Items 20 and 21, the older respondents exhibited means that were significantly lower than those of the younger respondents. Items 20 and 21 dealt with

Preretirement Counseling Workshops and Incentives for Early Retirement.

Comparison of Results from DDA and ANOVA for Perceived Career Development Program Needs for Current Positions in terms of Age

Table 4.50 Comparison of the Items Obtained from DDA and ANOVA for Perceived Career Development Program Needs for Current Positions in Terms of Age

DDA		ANOVA	
1	On-the job training/ internal training	1	On-the job training/ internal training
		4	Employee career counseling
		6	Employees' career paths design
		7	A career resource center
8	A job posting system	8	A job posting system
		10	Psychological testing for vocational interests and work attitudes
		13	Job rotation programs
14	Tuition refund programs	14	Tuition refund programs
15	Mentoring programs		
17	Salary reduction		
18	Midcareer development programs	18	Midcareer development programs
		20	Preretirement counseling workshops
		21	Incentives for early retirement
		22	Flexible work schedules
		27	Policies that are designed to better accommodate the needs of dual-career couples
28	Paid and unpaid parental leave	28	Paid and unpaid parental leave
29	Dependent care services	29	Dependent care services
		32	Future forums

Item 1(On-The Job Training/ Internal Training), Item 8 (A Job Posting System), Item 14 (Tuition Refund Programs), Item 18 (Midcareer Development Programs), Item 28 (Paid and Unpaid Parental Leave), and Item 29 (Dependent Care Services) were

detected as being important by discriminant function and statistically significant by ANOVA. Item 4 (Employee Career Counseling), Item 6 (Employees' Career Paths Design), Item 13 (Job Rotation Programs), Item 20 (Preretirement Counseling Workshops), and Item 21 (Incentives for Early Retirement), Item 22 (Flexible Work Schedules), Item 27 (Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples), and Item 32 (Future Forums) were indicated as representing significant differences by ANOVA. Item 15 (Mentoring Programs) and Item 17 (Salary Reduction) were unique items for discriminant function. The two procedures were judged to be equivalent. The comparison of the two post hoc results is given in Table 4.50. The differences in the number of variables and the respective items from the post hoc tests will be discussed in Chapter V.

Perceived Career Development Program Needs for Future Positions

The perceptions of needs for career development programs for an individual's future position in terms of Age were analyzed using a one-way MANOVA. A summary of the global tests are presented in Table 4.51.

Table 4.51 Summary Multivariate Analysis of Variance for Measures of Respondents' Perceptions of Career Development Program Needs for Future Positions in Terms of Age

	Value	Hypothesis <i>df</i>	Error <i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
Pillai's Trace	.435	132	3740.00	3.458	.000*	.109
Wilks' Lambda	.620	132	3711.54	3.590	.000*	.113
Hotelling's Trace	.529	132	3722.00	3.729	.000*	.117
Roy's Largest Root	.332	33	935.00	9.134	.000*	.244

Note: * $p < .05$.

A significant difference was obtained from Box's Test [$F(2244, 81093.393) = 1.415, p=.000$]. From Table 4.51, Pillai's trace of .435, which was converted to an F ratio of 3.458, was significant beyond the .001 level. The partial η^2 of .109 reflects a moderate level of practical significance. Thus, a significant effect for Age was indicated. The differences between the levels of Age were first identified using DDA and secondly probed using ANOVA and REGWF with an α level of .01.

Follow-Up Procedure 1: DDA

A DDA was performed as a follow-up procedure to distinguish among the different age groups based on linear combinations of the 33 measures. Four canonical discriminant functions were calculated to discriminate among Age as show in Tables 4.52 and 4.53. In testing the significance of the equality of means for each discriminating variable, 26 of 33 career development programs showed differences in the means of the variables for the five different age levels at $p < .05$. There was a significant difference in the covariance matrices among different age levels, $p = .000$ for the Box's M test. Three of the four functions resulted in statistical significance. Function 1 was statistically significant, $\Lambda = .620, \chi^2(132, N=969) = 453.780, p = .000$. This discriminant function accounted for 24.40% of the between-group variability. The remaining functions were further tested to identify significant difference across the age groups. After removing Function 1, Function 2 also demonstrated significance, $\Lambda = .820, \chi^2(96, N=969) = 188.612, p = .000$, and accounted for 9.73% of the between-group variability. When both Functions 1 and 2 were removed, Function 3 was also significant, $\Lambda = .908, \chi^2(62, N=969) = 91.431, p = .009$, and accounted for 5.43% of the between-group variability.

Table 4.52 Eigenvalues and Canonical Correlations for Perceived Career Development Program Needs for Future Positions in Terms of Age

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.322	60.9	60.9	.494
2	.108	20.4	81.3	.312
3	.057	10.9	92.2	.233
4	.041	7.8	100.0	.199

Table 4.53 Wilks' Lambda for Perceived Career Development Program Needs for Future Positions in Terms of Age

Test of Function(s)	Wilks' Lambda	Chi-square	<i>df</i>	Sig.
1 through 4	.620	453.780	132	.000
2 through 4	.820	188.612	96	.000
3 through 4	.908	91.431	62	.009
4	.960	38.450	30	.139

A summary of discriminant analysis along with the group centroids is reported in Tables 4.54A and 4.54B. An examination of the standardized discriminant function coefficients and the structure matrix shows that Item 1 (Training to Perform the Current Job), Item 14 (Tuition Refund Programs), Item 28 (Paid and Unpaid Parental Leave), Item 18 (Midcareer Development Programs), Item 8 (A Job Posting System), and Item 29 (Dependent Care Services) can be identified as the most important distinguishing variables for group differences for Function 1. Item 17 (Reducing Salaries) and Item 30 (Job-Sharing Programs) were the most important distinguishing variables for group differences for Function 2. Item 4 (Employees' Career Counseling), Item 15 (Mentoring Programs), and Item 33 (Career Advisers or Functional Representatives) were the strongest variables discriminating among the age groups for Function 3.

Table 4.54A Summary Data for Discriminate Function for Perceived Career Development Program Needs for Future Positions in Terms of Age

Item/Career Development Program	Function 1		Function 2		Function 3	
	c*	s*	c*	s*	c*	s*
1 On-the-job training/ internal training	.299	.329*	.444	-.059	.113	.172
2 Career workbooks	-.116	.158	-.003	.125	-.362	.017
3 Career planning workshops	-.042	.148	-.166	-.043	.382	-.033
4 Employee career counseling	-.229	.144	.222	.204	-.748	-.124
5 Employees' service record	-.016	.119*	.125	.084	-.176	-.016
6 Employees' career paths design	.207	.233*	-.076	-.170	.224	-.085
7 A career resource center	-.108	.188*	-.125	-.099	-.153	-.043
8 A job posting system	.316	.369*	.221	-.030	.070	.215
9 Career simulation & assessment centers	-.002	.105*	-.068	.000	.015	.040
10 Psychological testing for vocational interests and work attitudes	.089	.214*	-.128	-.154	.072	.001
11 Promotability forecasts	-.016	.168*	.192	-.099	.253	.097
12 Succession planning	-.034	.027	-.389	-.039	.107	-.119
13 Job rotation programs	.159	.224*	.318	.126	-.422	.123
14 Tuition refund programs	.276	.430*	.248	-.039	.003	.135
15 Mentoring programs	-.136	.064	-.244	-.366*	.463	-.083
16 Realistic job previews and introduction of company	-.171	.026	-.109	-.167	-.086	-.186*
17 Salary reduction	-.099	-.083	.294	.021	.123	.310*
18 Midcareer development programs	.328	.139	-.100	.310*	.006	.143
19 Supervisors workshops on older worker issues	-.111	-.115	.185	.117*	-.123	-.091
20 Preretirement counseling workshops	-.170	-.227*	-.125	.133	-.182	-.134
21 Incentives for early retirement	-.178	-.243*	-.082	.172	-.022	-.085
22 Flexible work schedules	.173	.298*	.144	.008	.096	.022
23 Special development programs for "fast track" or "high-potential" employees	-.028	.147	-.052	-.082	-.368	-.171*
24 Career counseling training for supervisors	-.056	-.028	-.073	.055	.088	-.118
25 Outplacement programs for terminated employees	-.165	-.039	-.003	-.031	.220	-.010
26 Special programs for women and minorities	-.219	.032	.082	-.137	.130	-.156
27 Policies that are designed to better accommodate the needs of dual-career couples	.269	.281*	-.056	.027	.145	-.064

Table 4.54A (continued)

Item/Career Development Program	Function 1		Function 2		Function 3	
	c*	s*	c*	s*	c*	s*
28 Paid and unpaid parental leave	.276	.425*	.042	-.003	.053	-.313
29 Dependent care services	.407	.501	-.686	.161	-.279	-.544*
30 Job-sharing programs	-.071	.135	-.220	-.183*	.182	-.147
31 Work-family programs	.000	.163	-.054	-.005	-.131	-.217*
32 Future forums	.028	.170	.211	-.151	.016	.169
33 Career advisers or functional representatives	.033	.113	.189	-.163*	.405	.079

Note: * c represents standardized canonical discriminant function coefficients

* s represents structure coefficients

* Largest absolute correlation between each variable and any discriminant function.

Table 4.54B Group Centroids for Function 1, 2, and 3 (Future Positions in Terms of Age)

	Function 1	Function 2	Function 3
21-30	1.100	-.637	.678
31-40	.718	-.111	-.218
41-50	-.035	.312	-.022
51-60	-.594	-.098	.173
60 and above	-1.032	-1.002	-.586

With respect to Function 1, the younger respondents tended to perceive higher needs for career development programs related to Training to Perform the Current Job, Tuition Refund Programs, Paid and Unpaid Parental Leave, A Job Posting System, Midcareer Development Programs, and Dependent Care Services than older respondents. With respect to Function 2, except for the respondents in the age group of 41 to 50, the respondents in the other age groups showed lower needs for Salary Reduction; in addition, the older respondents tend to show lower needs for Job-Sharing Programs. With respect to Function 3, the younger respondents showed stronger needs for Employees' Career Counseling, Mentoring Programs, and Career Advisers or Functional Representatives than older respondents.

Follow-Up Procedure 2: Univariate Analysis

A summary of the post hoc procedure of univariate analysis is presented in Table 4.55.

Table 4.55 Summary Univariate Analyses of Perceived Career Development Program Needs for Future Positions in Terms of Age

	Item/ Career Development Program	<i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
1	On-the job training/ internal training	4	17.281	.000*	.067
2	Career workbooks	4	4.124	.003*	.017
4	Employee career counseling	4	4.046	.003*	.017
5	Employees' service record	4	3.818	.004*	.016
6	Employees' career paths design	4	6.697	.000*	.027
7	A career resource center	4	3.612	.006*	.015
8	A job posting system	4	16.714	.000*	.065
9	Career simulation & assessment centers	4	3.824	.004*	.016
10	Psychological testing for vocational interests and work attitudes	4	6.879	.000*	.028
11	Promotability forecasts	4	5.883	.000*	.024
12	Succession planning	4	3.557	.007*	.015
13	Job rotation programs	4	9.526	.000*	.038
14	Tuition refund programs	4	17.052	.000*	.066
15	Mentoring programs	4	3.331	.010*	.014
18	Midcareer development programs	4	13.723	.000*	.054
22	Flexible work schedules	4	13.053	.000*	.051
23	Special development programs for "fast track" or "high-potential" employees	4	5.151	.000*	.021
27	Policies that are designed to better accommodate the needs of dual-career couples	4	12.730	.000*	.050
28	Paid and unpaid parental leave	4	23.988	.000*	.091
29	Dependent care services	4	34.420	.000*	.125
30	Job-sharing programs	4	5.220	.000*	.021

Table 4.55 (continued)

Item/ Career Development Program	<i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
31 Work-family programs	4	6.053	.000*	.025
32 Future forums	4	5.591	.000*	.023
33 Career advisers or functional representatives	4	5.230	.000*	.021

Note: * $p < .01$.

Significant differences were obtained for 24 of the 33 programs and most of the partial η^2 were judged to be small. The REGWF results are summarized in Figure 4.7.

Figure 4.7 Summary of R.E.G.W.F. Tests for Perceived Career Development Program Needs for Future Positions in Terms of Age

1 On-the job training/ internal training

60 and above (3.50)	51-60 (3.80)	41-50 (4.12)	31-40 (4.23)	21-30 (4.28)
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2 Career workbooks

60 and above (3.80)	51-60 (3.81)	21-30 (3.94)	41-50 (3.97)	31-40 (4.09)
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4 Employee career counseling

51-60 (3.54)	60 and above (3.58)	21-30 (3.58)	41-50 (3.75)	31-40 (3.81)
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5 Employees' service record

60 and above (3.72)	51-60 (3.89)	21-30 (3.96)	41-50 (4.03)	31-40 (4.10)
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6 Employees' career paths design

60 and above (3.43)	51-60 (3.63)	41-50 (3.81)	31-40 (3.94)	21-30 (4.04)
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7 A career resource center

51-60 (3.85)	60 and above (3.85)	41-50 (3.99)	31-40 (4.07)	21-30 (4.14)
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Figure 4.7 (continued)

8 A job posting system				
60 and above (3.13)	51-60 (3.58)	41-50 (3.84)	31-40 (4.06)	21-30 (4.16)
9 Career simulation & assessment centers				
60 and above (3.18)	51-60 (3.34)	41-50 (3.48)	31-40 (3.58)	21-30 (3.68)
10 Psychological testing for vocational interests and work attitudes				
60 and above (3.35)	51-60 (3.46)	41-50 (3.68)	31-40 (3.76)	21-30 (4.02)
11 Promotability forecasts				
60 and above (3.32)	51-60 (3.65)	41-50 (3.76)	31-40 (3.91)	21-30 (4.02)
12 Succession planning				
51-60 (3.67)	60 and above (3.72)	41-50 (3.73)	31-40 (3.90)	21-30 (4.08)
13 Job rotation programs				
60 and above (3.55)	51-60 (3.71)	21-30 (3.92)	41-50 (3.97)	31-40 (4.13)
14 Tuition refund programs				
60 and above (3.55)	51-60 (3.88)	41-50 (4.11)	31-40 (4.36)	21-30 (4.40)
15 Mentoring programs				
60 and above (3.75)	41-50 (3.88)	51-60 (3.91)	31-40 (3.99)	21-30 (4.26)
18 Midcareer development programs				
60 and above (3.65)	51-60 (3.76)	41-50 (4.02)	31-40 (4.19)	21-30 (4.40)

Figure 4.7 (continued)

22 Flexible work schedules				
60 and above (3.30)	51-60 (3.39)	41-50 (3.57)	31-40 (3.86)	21-30 (4.02)
23 Special development programs for “fast track” or “high-potential” employees				
51-60 (3.68)	60 and above (3.80)	41-50 (3.83)	31-40 (4.00)	21-30 (4.08)
27 Policies that are designed to better accommodate the needs of dual-career couples				
60 and above (3.48)	51-60 (3.61)	41-50 (3.76)	31-40 (4.01)	21-30 (4.28)
28 Paid and unpaid parental leave				
60 and above (3.20)	51-60 (3.32)	41-50 (3.41)	31-40 (3.92)	21-30 (4.26)
29 Dependent care services				
51-60 (3.06)	41-50 (3.11)	60 and above (3.23)	31-40 (3.91)	21-30 (4.18)
30 Job-sharing programs				
51-60 (3.31)	41-50 (3.34)	60 and above (3.35)	31-40 (3.50)	21-30 (3.90)
31 Work-family programs				
60 and above (3.40)	51-60 (3.40)	41-50 (3.44)	31-40 (3.71)	21-30 (3.86)
32 Future forums				
60 and above (3.35)	51-60 (3.77)	41-50 (3.80)	31-40 (3.97)	21-30 (3.98)
33 Career advisers or functional representatives				
60 and above (3.13)	51-60 (3.54)	41-50 (3.61)	31-40 (3.68)	21-30 (3.90)

Note: Groups connected by a common line are not significantly different from each other.
The value in the parentheses represents the mean of each group.

In all of the significant items, the older respondents exhibited means that were significantly lower than those of the younger respondents. The significant differences for Items 20 and 21 that occurred in the current position data were not sustained in the future position data.

Comparison of Results from DDA and ANOVA for Perceived Career Development Program Needs for Future Position in terms of Age

Table 4.56 Comparison of the Items Obtained from DDA and ANOVA for Perceived Career Development Program Needs for Future Positions in Terms of Age

DDA		ANOVA	
1	On-the job training/ internal training	1	On-the job training/ internal training
		2	Career workbooks
4	Employee career counseling	4	Employee career counseling
		5	Employees' service record
		6	Employees' career paths design
		7	A career resource center
8	A job posting system	8	A job posting system
		9	Career simulation & assessment centers
		10	Psychological testing for vocational interests and work attitudes
		11	Promotability forecasts
		12	Succession planning
		13	Job rotation programs
14	Tuition refund programs	14	Tuition refund programs
15	Mentoring programs	15	Mentoring programs
17	Salary reduction		
18	Midcareer development programs	18	Midcareer development programs
		22	Flexible work schedules
		23	Special development programs for "fast track" or "high-potential" employees
		27	Policies that are designed to better accommodate the needs of dual-career couples

Table 4.56 (continued)

DDA		ANOVA	
28	Paid and unpaid parental leave	28	Paid and unpaid parental leave
29	Dependent care services	29	Dependent care services
30	Job-sharing programs	30	Job-sharing programs
		31	Work-family programs
		32	Future forums
33	Career advisers or functional representatives	33	Career advisers or functional representatives

The 2 post hoc procedures resulted in very different results in terms of Age (see Table 4.56). Ten common items were indicated by both procedures and the ANOVA technique resulted in 14 unique programs being statistically significant and discriminant function resulted in only 1 unique program as being weighted. The difference in these post hoc results will be explored in Chapter V.

Education

Perceived Career Development Program Needs for Current Positions

The perceptions of needs for career development programs for an individual's current position in terms of Education were analyzed using a one-way MANOVA. A summary of the global tests is presented in Table 4.57.

Table 4.57 Summary Multivariate Analysis of Variance for Measures of Respondents' Perceptions of Career Development Program Needs for Current Positions in Terms of Education

	Value	Hypothesis		<i>F</i>	<i>p</i>	Partial Eta Squared
		<i>df</i>	Error <i>df</i>			
Pillai's Trace	.179	99	2961.00	1.896	.000*	.060
Wilks' Lambda	.829	99	2949.89	1.923	.000*	.060
Hotelling's Trace	.196	99	2951.00	1.950	.000*	.061
Roy's Largest Root	.131	33	987.00	3.916	.000*	.116

Note: * $p < .05$.

A significant difference was obtained for Box's Test [$F(1683, 229988.9) = 1.217, p = .000$]. From Table 4.57, Pillai's trace of .179, which was converted to an F ratio of 1.896, was significant beyond the .001 level (partial $\eta^2 = .060$, which indicates a moderate effect size). Thus, a significant effect for Education was indicated. The differences between the levels of Education were firstly probed using DDA and secondly using ANOVA and REGWF with an α level of .01.

Follow-Up Procedure 1: DDA

A DDA was performed as a follow-up procedure to distinguish among the different educational levels based on linear combinations of the 33 measures. Three canonical discriminant functions were calculated to discriminate between the four educational levels as shown in Table 4.58. In testing the significance of the Equality of Means for each discriminating variable, six of the 33 career development programs showed differences in the means of the variables for the four different educational levels at $p < .05$. There was a significant difference in the covariance matrices among the four educational levels, $p = .000$ for the Box's M test. The first discriminant function demonstrated statistical significance, $\Lambda = .829, \chi^2(99, N=1021) = 187.490, p = .000$, and

accounted for 11.56 percent of the variability of the scores for the discriminant function. The Eigenvalues, Canonical Correlation, and Wilks' Lambda are reported in Tables 4.58 and 4.59.

Table 4.58 Eigenvalues and Canonical Correlations for Perceived Career Development Program Needs for Current Positions in Terms of Education

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.131	66.7	66.7	.340
2	.044	22.2	88.9	.204
3	.022	11.1	100.0	.146

Table 4.59 Wilks' Lambda for Perceived Career Development Program Needs for Current Positions in Terms of Education

Test of Function(s)	Wilks' Lambda	Chi-square	<i>df</i>	Sig.
1 through 3	.829	187.490	99	.000
2 through 3	.938	64.256	64	.468
3	.979	21.517	31	.898

A summary of the DDA along with the group centroids is displayed in Tables 4.60A and 4.60B. An examination of the standardized discriminant function coefficients and the structure matrix shows that Item 15 (Mentoring Programs), Item 16 (Realistic Job Previews), Item 20 (Preretirement Counseling Workshops), and Item 26 (Special Programs for Women and Minorities) can be identified as the most important distinguishing variables for group differences. Group means for the discriminant function indicated that those who possessed an educational level of High School or Below had a group mean of .734, and those who possessed an educational level of Vocational School had a group mean of .270, those who possessed an educational level

of Bachelors had a group mean of -.136, and those who possessed educational level of Master or Above had a group mean of -.668. Assessing the distance of the group centroids, the respondents with lower education levels than those with higher education levels were clearly separated by the analysis of discriminant function.

Table 4.60A Summary Data for Discriminate Function for Perceived Career Development Program Needs for Current Positions in Terms of Education

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
1 On-the-job training/ internal training	.060	.034
2 Career workbooks	.231	.120
3 Career planning workshops	-.046	.076
4 Employee career counseling	.184	.121*
5 Employees' service record	-.303	-.165
6 Employees' career paths design	.057	.005
7 A career resource center	-.204	-.049
8 A job posting system	.094	.028
9 Career simulation & assessment centers	.072	.005
10 Psychological testing for vocational interests and work attitudes	-.311	-.060
11 Promotability forecasts	.213	-.029
12 Succession planning	-.113	-.096
13 Job rotation programs	-.335	-.279
14 Tuition refund programs	-.242	-.147*
15 Mentoring programs	.456	.312*
16 Realistic job previews and introduction of company	.431	.340*
17 Salary reduction	.070	.042
18 Midcareer development programs	-.091	-.009
19 Supervisors workshops on older worker issues	-.062	.100
20 Preretirement counseling workshops	.457	.347*
21 Incentives for early retirement	.126	.155
22 Flexible work schedules	-.290	-.202*
23 Special development programs for "fast track" or "high-potential" employees	-.209	-.163*
24 Career counseling training for supervisors	-.278	-.088
25 Outplacement programs for terminated employees	.039	.182
26 Special programs for women and minorities	.365	.293*

Table 4.60A (continued)

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
27 Policies that are designed to better accommodate the needs of dual-career couples	-.076	-.015
28 Paid and unpaid parental leave	.100	.040
29 Dependent care services	-.128	-.017
30 Job-sharing programs	.050	.024
31 Work-family programs	-.059	.021
32 Future forums	-.239	-.142*
33 Career advisers or functional representatives	-.003	.074

Note: * Largest absolute correlation between each variable and the first discriminant function.

Table 4.60B Group Centroids for Function 1 (Current Positions in Terms of Education)

High school or Below	.734
Vocational School	.270
Bachelors	-.136
Master or Above	-.668

The respondents who possessed a lower level of education tended to express more needs for career development programs related to Mentoring Programs, Realistic Job Previews, Preretirement Counseling Workshops, and Special Programs for Women and Minorities than those of the respondents who possessed a higher level of education.

Follow-Up Procedure 2: Univariate Analysis

A summary of the univariate analyses is displayed in Table 4.61.

Table 4.61 Summary Univariate Analysis of Perceived Career Development Programs Needs for Current Positions in Terms of Education

Item/ Career Development Program	<i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
13 Job rotation programs	3	4.386	.004*	.013
15 Mentoring programs	3	4.390	.004*	.013
16 Realistic job previews and introduction of company	3	5.298	.001*	.015
20 Preretirement counseling workshops	3	5.780	.001*	.017
26 Career programs for women and minorities	3	4.029	.007*	.012

Note: * $p < .01$.

Significant differences were obtained for Items 13 (Job Rotation Programs), 15 (Mentoring Programs), 16 (Realistic Job Previews and Introduction of Company), 20 (Preretirement Counseling Workshops) and 26 (Career Programs for Women and Minorities). The indications of effect size were all judged to be low. The REGWF results are summarized in Figure 4.8.

**Figure 4.8 Summary of R.E.G.W.F. Tests for Perceived Career Development
Program Needs for Current Positions in Terms of Education**

13 Job rotation programs

High School or below (3.68) Vocational School (3.89) Bachelors (3.90) Master or Above (4.14)

15 Mentoring programs

Master or Above (3.74) Bachelors (3.89) Vocational School (4.01) High School or below (4.08)

16 Realistic job previews and introduction of company

Master or Above (3.55) Bachelors (3.76) Vocational School (3.88) High School or below (3.97)

20 Preretirement counseling workshops

Master or Above (3.49) Bachelors (3.58) Vocational School (3.80) High School or below (3.95)

26 Career programs for women and minorities

Master or Above (3.37) Bachelors (3.45) Vocational School (3.61) High School or below (3.77)

Note: Groups connected by a common line are not significantly different from each other.
The value in the parentheses represents the mean of each group.

Except for Item 13, the respondents who possessed a higher level of Education exhibited means that were significantly lower than those of the respondents who possessed an Education level of High School or Below.

Comparison of Results from DDA and ANOVA for Perceived Career Development Program Needs for Current Positions in Terms of Education

Table 4.62 Comparison of the Items Obtained from DDA and ANOVA for Perceived Career Development Program Needs for Current Positions in Terms of Education

DDA		ANOVA	
		13	Job rotation programs
15	Mentoring programs	15	Mentoring programs
16	Realistic job previews and introduction of company	16	Realistic job previews and introduction of company
20	Preretirement counseling workshops	20	Preretirement counseling workshops
26	Career programs for women and minorities	26	Career programs for women and minorities

Very comparable results were obtained for the two post hoc procedures for the levels of Education (see Table 4.62). The item of Job Rotation Programs as detected by ANOVA was the only difference for the two techniques.

Perceived Career Development Program Needs for Future Position

The perceptions of needs for career development programs for an individual's future position in Terms of Education were analyzed using a one-way MANOVA. A summary of the global tests are presented in Table 4.63.

Table 4.63 Summary Multivariate Analysis of Variance for Measures of Respondents' Perceptions of Career Development Program Needs for Future Positions in Terms of Education

	Hypothesis					Partial Eta Squared
	Value	<i>df</i>	Error <i>df</i>	<i>F</i>	<i>p</i>	
Pillai's Trace	.179	99	2796.00	1.896	.000*	.060
Wilks' Lambda	.829	99	2785.22	1.923	.000*	.061
Hotelling's Trace	.196	99	2786.00	1.950	.000*	.061
Roy's Largest Root	.127	33	932.00	3.916	.000*	.113

Note: * $p < .05$.

A significant difference was obtained for Box's Test [$F(1683, 183116.2) = 1.346$, $p = .000$]. From Table 4.63, Pillai's trace of .179, which was converted to an F ratio of 1.796, was significant beyond the .001 level (partial $\eta^2 = .060$, which reflects a moderate effect size) and thus indicated a significant effect for Education.

The differences between the levels of Education were firstly identified by utilizing the DDA and secondly probed using ANOVA and REGWF with an α level of .01.

Follow-Up Procedure 1: DDA

A DDA was performed as a follow-up procedure to distinguish among the different educational levels based on linear combinations of the 33 measures. Three canonical discriminant functions were calculated to discriminate between the four educational levels as shown in Table 4.64 and 4.65. In testing the significance of the Equality of Means for each discriminating variable, 11 of the 33 career development programs showed differences in the means of the variables for the four different educational levels at $p < .05$. There was a significant difference in the covariance matrices among the four different educational levels, $p = .000$ for the Box's M test. The first discriminant function demonstrated statistical significance, $\Lambda = .829$, $\chi^2(99, N=966) = 177.469$, $p = .000$, and

accounted for 11.22 percent of the variability of the scores for the discriminant function.

The other two discriminant functions were not significant.

Table 4.64 Eigenvalues and Canonical Correlations for Perceived Career Development Program Needs for Future Positions in Terms of Education

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.127	64.6	64.6	.335
2	.048	24.2	88.9	.213
3	.022	11.1	100.0	.146

Table 4.65 Wilks' Lambda for Perceived Career Development Program Needs for Future Positions in Terms of Education

Test of Function(s)	Wilks' Lambda	Chi-square	<i>df</i>	Sig.
1 through 3	.829	177.469	99	.000
2 through 3	.934	64.443	64	.461
3	.979	20.445	31	.926

A summary of the discriminant analysis along with the group centroids is given in Tables 4.66A and 4.66B. An examination of the standardized discriminant function coefficients and the structure matrix shows that Item 18 (Midcareer Development Programs), Item 22 (Flexible Work Schedules), Item 23 (Special Development Programs for “Fast Track” or “High-Potential” Employees), Item 24 (Career Counseling Training for Supervisors), and Item 32 (Future Forums) can be identified as the most important distinguishing variables for group differences. Group means for the function indicated that those who possessed an educational level of High School or Below had a group mean of $-.653$, and those who possessed an educational level of Vocational School had a group mean of $-.276$, those who possessed an educational level of Bachelors had a group

mean of .115, and those who possessed an educational level of Master or Above had a group means of .691. Assessing the distance of the group centroids, the discriminant function clearly distinguished the respondents with lower education levels from those with higher education levels.

Table 4.66A Summary Data for Discriminate Function for Perceived Career Development Program Needs for Future Positions in Terms of Education

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
1 On-the-job training/ internal training	.150	.214
2 Career workbooks	-.293	-.014
3 Career planning workshops	-.031	.041
4 Employee career counseling	-.082	.014
5 Employees' service record	.331	.246
6 Employees' career paths design	.042	.099*
7 A career resource center	-.050	.057
8 A job posting system	.012	.106
9 Career simulation & assessment centers	-.084	.081
10 Psychological testing for vocational interests and work attitudes	.077	.094
11 Promotability forecasts	-.195	.127
12 Succession planning	.256	.313
13 Job rotation programs	.202	.255*
14 Tuition refund programs	.138	.191
15 Mentoring programs	-.484	-.212
16 Realistic job previews and introduction of company	-.350	-.150
17 Salary reduction	-.080	-.016
18 Midcareer development programs	.377	.319*
19 Supervisors workshops on older worker issues	.076	.127
20 Preretirement counseling workshops	-.260	-.058
21 Incentives for early retirement	-.089	.017
22 Flexible work schedules	.329	.321*
23 Special development programs for "fast track" or "high-potential" employees	.203	.291*
24 Career counseling training for supervisors	.398	.331*
25 Outplacement programs for terminated employees	-.167	-.065
26 Special programs for women and minorities	-.346	-.178*

Table 4.66A (continued)

Item/Career Development Program	Standardized Function Coefficient	Structure Coefficient
27 Policies that are designed to better accommodate the needs of dual-career couples	.056	.103*
28 Paid and unpaid parental leave	-.180	.011
29 Dependent care services	.164	.093
30 Job-sharing programs	-.033	.063
31 Work-family programs	.029	.097
32 Future forums	.245	.253*
33 Career advisers or functional representatives	-.085	.023

Note: * Largest absolute correlation between each variable and the first discriminant function.

Table 4.66B Group Centroids for Function 1 (Future Positions in Terms of Education)

High school or Below	-.653
vocational School	-.276
Bachelors	.115
Master or Above	.691

In contrast to the results obtained for the career development program needs for current positions, the respondents who possessed a higher level of education were more likely to express needs for Midcareer Development Programs, Flexible Work Schedules, Special Development Programs for “Fast Track” or “High-Potential” Employees, and Future Forums. The respondents who possessed a lower level of education tended to express more needs for career development programs related to Special Programs for Women and Minorities than those of the respondents who possessed a higher level of education.

Follow-Up Procedure 2: Univariate Analysis

A summary of the univariate analyses is displayed in Table 4.67.

Table 4.67 Summary Univariate Analysis and Mean of Career Development Programs Needs for Future Positions in Terms of Education

Item/ Career Development Program	<i>df</i>	<i>F</i>	<i>p</i>	Partial Eta Squared
12 Succession planning	3	5.861	.001*	.018
18 Midcareer development programs	3	4.881	.002*	.015
22 Flexible work schedules	3	4.495	.004*	.014
23 Special development programs for “fast track” or “high-potential” employees	3	3.796	.010*	.012
24 Career counseling training for supervisors	3	4.754	.003*	.015

Note: * $p < .01$.

Significant differences were obtained for 5 of the 33 programs. The significant programs were concerned with Item 12 (Succession Planning), 18 (Midcareer Development Programs), 22 (Flexible Work Schedules), 23 (Special Development Programs for “Fast Track” or “High-Potential” Employees), and 24 (Career Counseling Training for Supervisors). The indications of effect size were all judged to be low. The REGWF results are summarized in Figure 4.9.

**Figure 4.9 Summary of R.E.G.W.F. Tests for Perceived Career Development
Program Needs for Future Positions in Terms of Education**

12 Succession planning

High School or below (3.37)	Vocational School (3.76)	Bachelors (3.78)	Master or Above (3.95)
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18 Midcareer development programs

High School or below (3.72)	Vocational School (3.91)	Bachelors (4.05)	Master or Above (4.11)
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22 Flexible work schedules

High School or below (3.58)	Vocational School (3.79)	Bachelors (3.88)	Master or Above (3.98)
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23 Special development programs for “fast track” or “high-potential” employees

High School or below (3.58)	Vocational School (3.79)	Bachelors (3.88)	Master or Above (3.98)
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24 Career counseling training for supervisors

High School or below (3.49)	Vocational School (3.70)	Bachelors (3.79)	Master or Above (3.93)
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Note: Groups connected by a common line are not significantly different from each other.

The value in the parentheses represents the mean of each group.

For all of the significant programs, the respondents who possessed an Education level of High School or Below exhibited means that were significantly lower than those of the respondents who possessed a Master’s or Above.

Comparison of Results from DDA and ANOVA for Perceived Career Development Program Needs for Future Positions in Terms of Education

Table 4.68 Comparison of the Items Obtained from DDA and ANOVA for Perceived Career Development Program Needs for Future Positions in Terms of Education

DDA		ANOVA	
		12	Succession planning
18	Midcareer development programs	18	Midcareer development programs
22	Flexible work schedules	22	Flexible work schedules
23	Special development programs for “fast track” or “high-potential” employees	23	Special development programs for “fast track” or “high-potential” employees
24	Career counseling training for supervisors	24	Career counseling training for supervisors
32	Future Forums		

The only difference between the results of the 2 post hoc procedures was in terms of Succession Planning for ANOVA and Future Forums for DDA (See Table 4.68). The two procedures were judged to be equivalent. This level of agreement will be examined in Chapter V.

Research Question 7

Are there differences in the proportions of respondents' perceptions that the company already provided the selected career development programs?

Two category selections, “Yes” and “No”, were used to inquire about respondents' opinions on whether they believed the company provided the selected career development programs. This research question was addressed utilizing the total sample and the classification variables of Job Function and Job Role. The hypotheses associated with this research question were formulated to determine whether the respondents believed the company already provided career development programs. The hypotheses, restated in the null form were:

- There is no significant difference in the proportion of participants' responses with regard to whether respondents believed the organization already provided the career development programs.
- There is no significant difference between the proportions of participants' responses with regard to whether respondents believed the organization already provided the career development programs for individuals with different levels of Job Function.
- There is no significant difference between the proportions of participants' responses with regard to whether respondents believed the organization already provided the career development programs for individuals with different levels of Job Role.

Chi-square tests were utilized to assess the statistical significance of the proportions between career development programs for the total sample, Job Function, and Job Role in regards to whether the respondent believed the company already

provided career development programs. The cross-tabulation of each of the items by Job Function and Job Role was also generated. Significance was computed at the .05 level for each of the hypotheses. The results of the analyses are presented in the following sequences: (1) total sample, (2) Job Function, and (3) Job Role.

Total Sample

The frequencies, percentage, and Chi-squares values for overall responses for each career development program are presented in the Table 4.69. The results indicated that there are significant differences between the proportions of responses on each of the career development programs with regard to whether the respondent believed the company already provided the career development program. However, a non-significant difference was found for Item 26 (Paid and Unpaid Parental Leave) ($\chi^2 = .500$, $df=1$, $p=.480$). For Item 26, the proportions of responses on the “Yes” and “No” categories were nearly equal.

A majority of the respondents expressed that they believed the company already provided the programs for: On-The-Job Training/ Internal Training, Employees’ Service Record, Job Rotation Programs, Tuition Refund Programs, Mentoring Programs, Realistic Job Previews and Introduction of Company, and Incentives for Early Retirement. On the other hand, a higher proportion of respondents indicated that the company did not provide the following programs: Career Workbooks, Career Planning Workshops, Employee Career Counseling, Employees’ Career Paths Design, A Job Posting System, Career Simulation & Assessment Centers, Psychological Testing for Vocational Interests and Work Attitudes, Promotability Forecasts, Salary Reduction,

Midcareer Development Programs, Supervisors Workshops on Older Worker Issues, Flexible Work Schedules, Special Development Programs for “Fast Track” or “High-Potential” Employees, Career Counseling Training for Supervisors, Outplacement Programs for Terminated Employees, Special Programs for Women and Minorities, Policies That are Designed to Better Accommodate the Needs of Dual-Career Couples, Job-Sharing Programs, Work-Family Programs, Future Forums, and Career Advisers or Functional Representatives. Except for Items 12 (Succession Planning), 20 (Preretirement Counseling Workshops), and 29 (Dependent Care Services), the proportions of the respondents that believed the company already provided these programs is close to the proportions of the respondents that believed the company did not provide these programs.

Table 4.69 Frequencies, Percentage, and Chi-Square Analysis of All Respondents’ Opinions of Whether the Organization Already Provided the Career Development Program

Item/ Career Development Program	Yes		No		χ^2	<i>p</i>
	N	%	N	%		
1 On-the-job training/ internal training	1077	79.8	226	16.8	555.80	.000
2 Career workbooks	243	18.0	963	71.4	429.85	.000
3 Career planning workshops	252	18.7	996	73.8	443.54	.000
4 Employee career counseling	366	27.1	891	66.0	219.27	.000
5 Employees’ service record	1127	83.5	166	12.3	714.25	.000
6 Employees’ career paths design	177	13.1	1079	80.0	647.77	.000
7 A career resource center	491	36.4	769	57.0	61.34	.000
8 A job posting system	308	22.8	947	70.2	325.36	.000
9 Career simulation & assessment centers	212	15.7	1037	76.9	544.94	.000
10 Psychological testing for vocational interests and work attitudes	183	13.6	1075	79.7	632.48	.000
11 Promotability forecasts	299	22.2	945	70.1	335.46	.000

Table 4.69 (continued)

Item/ Career Development Program	Yes		No		χ^2	<i>p</i>
	N	%	N	%		
12 Succession planning	665	49.3	586	43.4	4.99	.026
13 Job rotation programs	1000	74.1	297	22.0	381.04	.000
14 Tuition refund programs	964	71.5	296	21.9	354.15	.000
15 Mentoring programs	785	58.2	499	37.0	63.70	.000
16 Realistic job previews and introduction of company	1039	77.0	250	18.5	482.95	.000
17 Salary reduction	238	17.6	999	74.1	468.17	.000
18 Midcareer development programs	377	27.9	880	65.2	201.28	.000
19 Supervisors workshops on older worker issues	287	21.3	936	69.4	344.40	.000
20 Preretirement counseling workshops	662	49.1	582	43.1	627.21	.000
21 Incentives for early retirement	1059	78.5	225	16.7	541.71	.000
22 Flexible work schedules	161	11.9	1076	79.8	676.82	.000
23 Special development programs for “fast track” or “high-potential” employees	271	20.1	952	70.6	379.20	.000
24 Career counseling training for supervisors	383	28.4	830	61.5	164.72	.000
25 Outplacement programs for terminated employees	225	16.7	1001	74.2	491.17	.000
26 Special programs for women and minorities	237	17.6	971	72.0	445.99	.000
27 Policies that are designed to better accommodate the needs of dual- career couples	390	28.9	847	62.8	168.84	.000
28 Paid and unpaid parental leave	638	47.3	613	45.4	.500	.480
29 Dependent care services	574	42.6	673	49.9	7.860	.005
30 Job-sharing programs	354	26.2	872	64.6	218.86	.000
31 Work-family programs	355	26.3	886	65.7	227.21	.000
32 Future forums	318	23.6	922	68.3	294.21	.000
33 Career advisers or functional representatives	221	16.4	1018	75.5	512.68	.000

Note: χ^2 = Chi Square *df* = 1
p = Probability

Job Function

Chi-Square and a cross-tabulation of the three job function groups (Technology, Management, and Business/Sales) by the 33 items of career development programs

revealed no significant difference on 26 of the items in Table 4.70. However, significant differences did exist for Items 3 (Career Planning Workshops), 13 (Job Rotation Programs), 19 (Supervisors Workshops on Older Worker Issues), 20 (Preretirement Counseling Workshops), 27 (Policies That are Designed to Better Accommodate the Needs of Dual-Career Couples), 28 (Paid and Unpaid Parental Leave), and 29 (Dependent Care Services).

Table 4.70 Percentage and Chi-Square Analysis of Job Function and Career Development Programs for Respondents' Opinion of Whether the Organization Already Provided the Career Development Program

Item/ Career Development Program	Technology		Management		Business		χ^2	<i>p</i>
	Yes	No	Yes	No	Yes	No		
1 On-the-job training/ internal training	83.5	16.5	82.3	17.7	80.7	19.3	1.043	.594
2 Career workbooks	20.6	79.4	20.9	79.1	19.0	81.0	.378	.828
3 Career planning workshops	18.1	81.9	26.0	74.0	17.7	82.3	9.862	.007*
4 Employee career counseling	29.4	70.6	28.7	71.3	29.0	71.0	.061	.970
5 Employees' service record	87.4	12.6	89.2	10.8	84.1	15.9	3.453	.178
6 Employees' career paths design	13.7	86.3	15.5	84.5	13.2	86.8	.784	.676
7 A career resource center	38.4	61.6	42.3	57.7	34.8	65.2	3.533	.171
8 A job posting system	25.5	74.5	23.3	76.7	23.6	76.4	.717	.699
9 Career simulation & assessment centers	17.6	82.4	14.8	85.2	17.2	82.8	1.321	.517
10 Psychological testing for vocational interests and work attitudes	14.1	85.9	15.5	84.5	14.7	85.3	.315	.854
11 Promotability forecasts	22.5	77.5	25.7	74.3	25.2	74.8	1.573	.455
12 Succession planning	52.2	47.8	55.0	45.0	53.2	46.8	.750	.687
13 Job rotation programs	73.2	26.8	84.3	15.7	76.9	23.1	15.974	.000*
14 Tuition refund programs	74.8	25.2	77.4	22.6	79.5	20.5	2.482	.289
15 Mentoring programs	63.2	36.8	56.4	43.6	61.4	38.6	4.477	.107
16 Realistic job previews and introduction of company	80.0	20.0	82.8	17.2	79.3	20.7	1.538	.464
17 Salary reduction	18.3	81.7	19.5	80.5	21.8	78.2	1.442	.486
18 Midcareer development programs	29.2	70.8	30.3	69.7	31.0	69.0	.331	.847

Table 4.70 (continued)

Item/ Career Development Program	Technology		Management		Business		χ^2	<i>p</i>
	Yes	No	Yes	No	Yes	No		
19 Supervisors workshops on older worker issues	21.8	78.2	29.5	70.5	19.3	80.7	10.245	.006*
20 Preretirement counseling workshops	44.8	55.2	65.9	34.1	56.6	43.4	45.381	.000*
21 Incentives for early retirement	81.1	18.9	83.1	16.9	84.5	15.5	1.707	.426
22 Flexible work schedules	13.8	86.2	11.9	88.1	12.2	87.8	.891	.641
23 Special development programs for “fast track” or “high-potential” employees	20.7	79.3	21.4	78.6	26.2	73.8	3.102	.212
24 Career counseling training for supervisors	30.3	70.0	32.5	67.5	33.9	66.1	1.457	.483
25 Outplacement programs for terminated employees	18.7	81.3	19.4	80.6	16.7	83.3	.694	.707
26 Special programs for women and minorities	20.6	79.4	18.4	81.6	19.2	80.8	.679	.712
27 Policies that are designed to better accommodate the needs of dual-career couples	28.3	71.7	33.7	66.3	36.8	63.2	7.004	.030*
28 Paid and unpaid parental leave	44.5	55.5	53.1	46.9	62.9	37.1	25.667	.000*
29 Dependent care services	41.6	58.4	50.3	49.7	50.4	49.6	9.513	.009*
30 Job-sharing programs	27.5	72.5	30.5	69.5	30.1	69.9	1.230	.541
31 Work-family programs	26.9	73.1	31.1	68.9	30.3	69.7	2.347	.309
32 Future forums	25.1	74.9	26.5	73.5	26.2	73.8	.290	.865
33 Career advisers or functional representatives	17.8	82.2	17.5	82.5	18.2	81.8	.039	.980

Note: χ^2 = Chi Square
p = Probability
df = 2

The respondents who were in the classification of Business/Sales (82.3%) were more apt to express that they believed the company did not provide Career Planning Workshops than those who were in the other classifications, Technology (81.9%) and Management (74.0%). More respondents in the classification of Management (84.3%) responded that they believed the company already provided Job Rotation Programs than

did the respondents in other classifications, Technology (73.2%) and Business/Sales (76.9%). More respondents in the classification of Business/Sales (80.7%) responded that they believed the company did not provide Supervisors Workshops on Older Worker issues than did the respondents in other classifications, Technology (78.2%) and Management (70.5%). More respondents in the classification of Management (65.9%) expressed that they believed the company already provided Preretirement Counseling Workshops than did the respondents in the classification of Technology (44.8%). Respondents in the classification of Technology (71.7%) were more apt to express that they believed the company did not provide the Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples than the respondents in the other two classifications, Management (66.3%) and Business/Sales (63.2%). Respondents in the classification of Business/Sales (62.9%) were more apt to express that they believed the company already provide the program of Paid And Unpaid Parental Leave than the respondents in the classification of Technology (44.5%). Finally, more respondents in the classification of Technology (58.4%) believed the company did not provide the Dependent Care Service than did the respondents in the other two classifications, Management (49.7%) and Business/Sales (49.6%).

Job Role

A cross-tabular analysis for each item by three job roles (Employee, Line-Manager, and Upper-Manager) was conducted. No statistically significant differences were uncovered for Job Role and 23 of the items in Table 4.71. However, significant differences were found for Items 1 (On-The-Job Training/ Internal Training), 5

(Employees' Service Record), 11 (Promotability Forecasts), 12 (Succession Planning), 13 (Job Rotation Programs), 14 (Tuition Refund Programs), 16 (Realistic Job Previews and Introduction of Company), 19 (Supervisors Workshops on Older Worker Issues), 20 (Preretirement Counseling Workshops), and 27 (Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples).

Table 4.71 Percentage and Chi-Square Analysis of Job Roles and Career Development Programs for Respondents' Opinion of Whether the Organization Already Provided the Career Development Program

Career Development Program	Item/	Employees		Line-managers		Upper-managers		χ^2	<i>p</i>
		Yes	No	Yes	No	Yes	No		
1	On-the-job training/ internal training	79.9	20.1	85.2	14.8	90.7	9.3	13.032	.001*
2	Career workbooks	19.1	80.9	19.6	80.4	26.4	73.6	4.062	.131
3	Career planning workshops	19.7	80.3	18.3	81.7	16.3	11.1	5.213	.074
4	Employee career counseling	27.6	72.4	30.2	69.8	34.0	66.0	2.825	.244
5	Employees' service record	84.8	15.2	90.4	9.6	91.4	8.6	9.563	.008*
6	Employees' career paths design	13.5	86.5	14.0	86.0	17.0	83.0	1.297	.523
7	A career resource center	38.1	61.9	39.9	60.1	41.0	59.0	.625	.731
8	A job posting system	25.6	74.4	22.8	77.2	23.4	76.6	1.089	.580
9	Career simulation & assessment centers	17.1	82.9	17.2	82.8	16.1	83.9	.091	.956
10	Psychological testing for vocational interests and work attitudes	14.7	85.3	12.2	87.8	18.9	81.1	3.862	.145
11	Promotability forecasts	20.4	79.6	28.9	71.1	30.6	69.4	13.843	.001*
12	Succession planning	48.0	52.0	57.9	42.1	66.5	33.5	22.397	.000*
13	Job rotation programs	70.4	29.6	84.1	15.9	93.8	6.2	55.309	.000*
14	Tuition refund programs	73.5	26.5	78.3	21.7	87.6	12.4	15.017	.001*
15	Mentoring programs	58.6	41.4	64.1	35.9	67.1	32.9	5.794	.055
16	Realistic job previews and introduction of company	78.2	21.8	81.2	18.8	90.7	9.3	13.301	.001*
17	Salary reduction	21.0	79.0	18.3	81.7	12.9	87.1	5.610	.061
18	Midcareer development programs	28.9	71.1	30.3	69.7	34.6	65.4	2.044	.360

Table 4.71 (continued)

Career Development Program	Employees		Line-managers		Upper-managers		χ^2	<i>p</i>
	Yes	No	Yes	No	Yes	No		
19 Supervisors workshops on older worker issues	20.7	79.3	24.9	75.1	33.1	66.9	11.707	.003*
20 Preretirement counseling workshops	46.7	53.2	58.4	41.6	71.9	28.1	39.183	.000*
21 Incentives for early retirement	81.5	18.5	84.9	15.1	81.9	18.1	1.898	.387
22 Flexible work schedules	13.2	86.8	12.8	87.2	12.3	87.7	.107	.948
23 Special development programs for “fast track” or “high-potential” employees	21.3	78.7	22.2	77.8	26.3	73.7	1.878	.391
24 Career counseling training for supervisors	29.3	70.7	33.9	66.1	36.9	63.1	4.716	.095
25 Outplacement programs for terminated employees	17.4	82.6	18.4	81.6	22.6	77.4	2.272	.321
26 Special programs for women and minorities	20.2	79.8	16.7	83.3	23.0	77.0	3.091	.213
27 Policies that are designed to better accommodate the needs of dual-career couples	28.7	71.3	32.9	67.1	41.8	58.2	10.757	.005*
28 Paid and unpaid parental leave	51.1	48.9	50.6	49.4	51.6	48.4	.045	.978
29 Dependent care services	45.9	54.1	46.0	54.0	46.5	53.4	.014	.993
30 Job-sharing programs	30.2	69.8	25.5	74.5	30.3	69.7	2.599	.273
31 Work-family programs	26.4	73.6	30.8	69.2	34.4	65.6	5.177	.075
32 Future forums	24.3	75.5	28.1	71.9	26.6	73.4	1.805	.406
33 Career advisers or functional representatives	18.2	81.8	17.3	82.7	17.2	82.8	.207	.902

Note: χ^2 = Chi Square
p = Probability
df = 2

More Upper-Managers (90.7%) compared to Employees (79.9%) expressed that they believed the company already provided the programs associated with On-The-Job Training/ Internal Training. Similarly, more Upper-Managers (91.4%) surveyed stated that they believed the company already provided the program on Employees’ Service

Record, as compared to the Employees (84.8%). Employees (79.6%) were more likely than Upper-Managers (69.4%) to express that they believed the company did not provide the programs on Promotability Forecasts. More Employees (52.0%) expressed that they believed the Succession Planning Program was not provided by the company as compared to the Upper-Managers (33.5%). Upper-Managers (93.8%) were more likely than Employees (70.4%) to express that they believed the company already provided the Job Rotation Programs. More Upper-Managers (87.6%) responded that they believe the company already provided the Tuition Refund Programs than did Employees (73.5%). Upper-Managers (90.7%) were more likely than Employees (78.2%) to respond that they believed the Realistic Job Previews and Introduction of Company Programs were provided by the company. More Employees (79.3%) compared to Upper-Managers (66.9%) responded that they believed the Supervisors Workshops on Older Worker Issues were not provided by the company. More Upper-Managers (71.9%) expressed that they believe the company already provided Preretirement Counseling Workshops as compared to Employees (46.7%) and Line-Managers (58.4%). More Employees (71.3%) responded that they believed the company did not have The Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples than did Upper-Managers (58.2%).

Research Question 8

Are there differences in the proportions of respondents' perceptions that the company should provide the selected career development programs?

Two category selections, “Yes” and “No”, were used to inquire respondents' opinions on whether the company should provide the selected career development programs. The research questions were addressed utilizing the total sample and the classification variables of Job Function and Job Role. The hypotheses related to this research question were formulated to determine whether the respondents thought the company should provide specific career development programs. The hypotheses, restated in the null form are:

- There is no significance difference in the proportion of participants' responses with regard to whether respondents thought the organization should provide the career development programs.
- There is no significant difference between the proportions of participants' responses with regard to whether respondents thought the organization should provide the career development programs for individuals with different levels of Job Function.
- There is no significant difference between the proportions of participants' responses with regard to whether respondents thought the organization should provide the career development programs for individuals with different levels of Job Role.

The Chi-square test was utilized to assess the statistical significance of the differences between career development programs and total sample, Job Function, and Job Role in regards to whether the respondents thought the company should provide

career development programs. The cross-tabulation of each of the items by Job Function and Job Role were also generated. Significance was computed at the .05 level for each of the hypothesis. The results of the analyses are presented in the following sequence: (1) total sample, (2) Job Function, and (3) Job Role.

Total Sample

The frequencies, percentages, and Chi-square values for overall responses on whether the company should provide the selected career development programs are presented in the Table 4.72. The analyses gave indications that there were significant differences between the proportions of responses on each of the career development programs with regard to whether the respondent thought the company should provide career development programs. An overwhelming majority of the respondents thought that the company should provide most of the career development programs. However, only 58.9% of the respondents indicated that the company should provided the career development program associated with Salary Reduction. Nearly a quarter of the respondents thought that Job-Sharing Programs and Career Simulation & Assessment Centers should not be provided by the company.

Table 4.72 Frequencies, Percentages, and Chi-Square Analyses of All Respondents' Opinion of Whether the Organization Should Provide the Career Development Program

Item/ Career Development Program	Yes		No		χ^2	<i>p</i>
	N	%	N	%		
1 On-the-job training/ internal training	1166	86.4	35	2.6	1065.08	.000
2 Career workbooks	1088	80.7	154	11.4	702.38	.000
3 Career planning workshops	1034	76.6	242	17.9	491.59	.000
4 Employee career counseling	1042	77.2	210	15.6	1452.18	.000
5 Employees' service record	1126	83.5	67	5.0	940.05	.000
6 Employees' career paths design	1021	75.7	253	18.8	1328.41	.000
7 A career resource center	1131	83.8	134	9.9	785.78	.000
8 A job posting system	1042	77.2	220	16.3	535.41	.000
9 Career simulation & assessment centers	938	69.5	312	23.1	313.50	.000
10 Psychological testing for vocational interests and work attitudes	1040	77.1	243	18.0	495.10	.000
11 Promotability forecasts	1049	77.8	200	14.8	577.10	.000
12 Succession planning	1087	80.6	122	9.0	770.24	.000
13 Job rotation programs	1130	83.8	84	6.2	1955.26	.000
14 Tuition refund programs	1133	84.0	69	5.1	941.84	.000
15 Mentoring programs	1115	82.7	115	8.5	813.01	.000
16 Realistic job previews and introduction of company	1136	84.2	76	5.6	927.06	.000
17 Salary reduction	790	58.6	433	32.1	104.21	.000
18 Midcareer development programs	1139	84.4	125	9.3	813.45	.000
19 Supervisors workshops on older worker issues	1062	78.7	187	13.9	612.99	.000
20 Preretirement counseling workshops	1111	82.4	126	9.3	784.34	.000
21 Incentives for early retirement	1172	86.9	61	4.5	1001.07	.000
22 Flexible work schedules	986	73.1	263	19.5	1249.28	.000
23 Special development programs for "fast track" or "high-potential" employees	1057	78.4	193	14.3	597.20	.000
24 Career counseling training for supervisors	1073	79.5	171	12.7	654.02	.000
25 Outplacement programs for terminated employees	1108	82.1	159	11.8	710.81	.000
26 Special programs for women and minorities	1051	77.9	193	14.3	591.77	.000
27 Policies that are designed to better accommodate the needs of dual-career couples	1053	78.1	193	14.3	593.58	.000
28 Paid and unpaid parental leave	1085	80.4	151	11.2	705.79	.000

Table 4.72 (continued)

Item/ Career Development Program	Yes		No		χ^2	<i>p</i>
	N	%	N	%		
29 Dependent care services	1064	78.9	172	12.8	643.74	.000
30 Job-sharing programs	881	65.3	346	25.6	233.27	.000
31 Work-family programs	1048	77.7	201	14.9	574.39	.000
32 Future forums	1091	80.9	181	13.4	651.02	.000
33 Career advisers or functional representatives	1011	74.9	254	18.8	453.00	.000

Note: χ^2 = Chi Square *df* = 1
p = Probability

Job Function

A cross tabulation of the three job function groups (Technology, Management, and Business/Sales) by the 33 items of career development programs is displayed in Table 4.73. Chi-square analyses failed to show significant differences between Job Function for 30 items. The three items that exhibited difference were Items 17, 30, and 33. For Item 17 (Salary Reduction), more respondents in the classification of Management (70.5%) thought the company should provide this program than did respondents in the other two classifications, Technology (61.2%) and Business/Sales (65.6%). For Item 30 (Job-Sharing Programs), more respondents in the classification of Management (76.6%) compared to respondents in the classification of Technology (69.0%) considered that the company should provide this program. For Item 33 (Career Advisers or Functional Representatives), more respondents in the classification of Technology (82.4%) thought the company should provide this program as compared to the respondents in the classification of Business (74.6%).

Table 4.73 Percentages and Chi-Square Analyses of Job Functions and Career Development Programs for Respondents' Opinion of Whether the Organization Should Provide the Career Development Program

Item/ Career Development Program	Technology		Management		Business		χ^2	<i>p</i>
	Yes	No	Yes	No	Yes	No		
1 On-the-job training/ internal training	96.5	3.5	98.2	1.8	97.0	3.0	2.177	.337
2 Career workbooks	87.8	12.2	89.3	10.7	85.7	14.3	1.727	.422
3 Career planning workshops	80.1	19.9	82.7	17.3	81.8	18.2	1.049	.592
4 Employee career counseling	84.1	15.9	84.6	15.1	79.4	20.6	6.317	.177
5 Employees' service record	93.7	6.3	94.6	5.4	96.1	3.9	1.902	.386
6 Employees' career paths design	81.3	18.6	80.5	19.5	77.0	23.0	3.214	.523
7 A career resource center	89.1	10.9	90.9	9.1	87.5	12.5	1.800	.407
8 A job posting system	83.6	16.4	80.9	19.1	82.2	17.8	1.105	.575
9 Career simulation & assessment centers	75.2	24.8	75.4	24.6	74.3	25.7	.108	.948
10 Psychological testing for vocational interests and work attitudes	81.3	18.7	83.6	16.4	77.5	22.5	3.638	.162
11 Promotability forecasts	82.7	17.3	87.2	12.8	83.5	16.5	3.559	.169
12 Succession planning	89.4	10.6	93.1	6.9	87.9	12.1	4.892	.087
13 Job rotation programs	91.4	8.6	95.8	4.2	93.3	6.7	9.243	.055
14 Tuition refund programs	94.4	5.6	94.3	5.7	94.0	6.0	.041	.980
15 Mentoring programs	90.6	9.4	91.4	8.6	90.1	9.9	.346	.841
16 Realistic job previews and introduction of company	92.8	7.2	95.2	4.8	94.6	5.4	2.463	.292
17 Salary reduction	61.2	38.3	70.5	29.5	65.6	34.4	8.414	.015*
18 Midcareer development programs	89.9	10.1	90.5	9.5	90.1	9.9	.078	.962
19 Supervisors workshops on older worker issues	85.4	14.6	87.4	12.6	82.3	17.7	2.976	.226
20 Preretirement counseling workshops	89.1	10.9	92.6	7.4	88.2	11.8	3.843	.146
21 Incentives for early retirement	94.2	5.8	95.9	4.1	95.9	4.1	1.872	.392
22 Flexible work schedules	79.5	20.5	79.8	20.2	76.8	23.2	4.901	.298
23 Special development programs for "fast track" or "high-potential" employees	83.3	16.7	87.0	13.0	84.7	15.3	2.389	.303
24 Career counseling training for supervisors	86.7	13.3	86.8	13.2	84.1	15.9	1.170	.557
25 Outplacement programs for terminated employees	88.1	11.9	88.5	11.5	84.8	15.2	2.271	.321
26 Special programs for women and minorities	85.5	14.5	83.7	16.3	83.8	16.2	.724	.696
27 Policies that are designed to better accommodate the needs of dual-career couples	84.4	15.6	85.7	14.3	82.6	17.4	1.066	.587

Table 4.73 (continued)

Item/ Career Development Program	Technology		Management		Business		χ^2	<i>p</i>
	Yes	No	Yes	No	Yes	No		
28 Paid and unpaid parental leave	89.3	10.7	87.7	12.3	83.3	16.7	5.818	.055
29 Dependent care services	87.3	12.7	84.5	15.5	84.9	15.1	1.769	.413
30 Job-sharing programs	69.0	31.0	76.6	23.4	72.8	27.2	6.464	.039*
31 Work-family programs	83.5	16.5	86.9	13.1	80.7	19.3	4.191	.123
32 Future forums	87.2	12.8	87.0	13.0	81.4	18.6	5.553	.062
33 Career advisers or functional representatives	82.4	17.6	80.1	19.9	74.6	25.4	6.945	.031*

Note: χ^2 = Chi Square *df* = 2
p = Probability

Job Role

A crosstabulation of the three job roles (Employees, Line-Managers, and Upper-Managers) by 33 items of career development programs was generated. No statistically significant differences were found between job roles across 25 of the items in Table 4.74. Statistically, there were significant differences in the responses for Items 8 (A Job Posting System), 13 (Job Rotation Programs), 18 (Midcareer Development Programs), 22 (Flexible Work Schedules), 27 (Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples), 29 (Dependent Care Services), 30 (Job-Sharing Programs), and 33 (Career Advisers or Functional Representatives).

Table 4.74 Percentages and Chi-Square Analyses of Job Roles and Career Development Programs for Respondents' Opinion of Whether the Organization Should Provide the Career Development Program

Item/ Career Development Program	Employees		Line-managers		Upper-managers		χ^2	<i>p</i>
	Yes	No	Yes	No	Yes	No		
1 On-the-job training/ internal training	96.6	3.4	97.8	2.2	98.0	2.0	1.674	.433
2 Career workbooks	87.8	12.2	87.1	12.9	87.7	12.3	.097	.953
3 Career planning workshops	82.4	17.6	76.9	23.1	83.8	16.3	5.639	.060
4 Employee career counseling	83.4	16.6	82.0	18.0	85.2	14.8	3.570	.467
5 Employees' service record	93.8	6.3	95.4	4.6	95.3	4.7	1.377	.502
6 Employees' career paths design	81.0	19.0	77.6	22.4	81.8	18.2	2.675	.614
7 A career resource center	89.6	10.4	88.9	11.1	89.6	10.4	.117	.943
8 A job posting system	86.0	14.0	78.7	21.3	74.5	25.5	16.641	.000*
9 Career simulation & assessment centers	76.1	23.9	74.3	25.7	71.4	28.6	1.609	.447
10 Psychological testing for vocational interests and work attitudes	80.9	19.1	79.7	20.3	85.1	14.9	2.039	.361
11 Promotability forecasts	85.2	14.8	82.0	18.0	82.7	17.3	2.014	.365
12 Succession planning	89.0	11.0	90.2	9.8	93.4	6.6	2.649	.266
13 Job rotation programs	91.7	8.3	93.6	6.1	98.0	2.0	10.759	.029*
14 Tuition refund programs	94.1	5.9	95.0	5.0	93.4	6.6	.608	.738
15 Mentoring programs	90.9	9.1	89.1	10.9	92.8	7.2	1.807	.405
16 Realistic job previews and introduction of company	93.6	6.4	92.7	7.3	96.7	3.3	2.959	.228
17 Salary reduction	65.0	35.0	65.4	34.6	60.8	39.2	1.129	.569
18 Midcareer development programs	91.7	8.3	88.2	11.8	86.5	13.5	6.103	.047*
19 Supervisors workshops on older worker issues	85.0	15.0	84.0	16.0	87.3	12.7	.906	.636
20 Preretirement counseling workshops	89.0	11.0	90.1	9.9	93.4	6.6	2.686	.261
21 Incentives for early retirement	94.8	5.2	94.9	5.1	96.7	3.3	.987	.610
22 Flexible work schedules	82.5	17.5	74.9	25.1	70.2	29.8	16.733	.002*
23 Special development programs for "fast track" or "high-potential" employees	84.4	15.6	83.6	16.4	87.3	12.7	1.200	.549
24 Career counseling training for supervisors	85.7	14.3	85.8	14.2	89.7	10.3	1.833	.400

Table 4.74 (continued)

Career Development Program	Employees		Line-managers		Upper-managers		χ^2	<i>p</i>
	Yes	No	Yes	No	Yes	No		
25 Outplacement programs for terminated employees	88.8	11.2	87.0	13.0	81.8	18.2	5.766	.056
26 Special programs for women and minorities	85.6	14.4	82.2	17.8	84.0	16.0	2.134	.344
27 Policies that are designed to better accommodate the needs of dual-career couples	86.7	13.3	80.4	19.6	82.8	17.2	7.535	.023*
28 Paid and unpaid parental leave	88.5	11.5	87.0	13.0	85.9	14.1	1.120	.571
29 Dependent care services	88.0	12.0	84.3	15.7	80.8	19.2	6.844	.033*
30 Job-sharing programs	74.0	26.0	65.3	34.7	75.7	24.3	10.004	.007*
31 Work-family programs	84.9	15.1	81.2	18.8	84.9	15.1	2.580	.275
32 Future forums	86.8	13.2	84.8	15.2	82.7	17.3	2.181	.336
33 Career advisers or functional representatives	82.4	17.6	77.8	22.2	72.6	27.4	9.083	.011*

Note: χ^2 = Chi Square
p = Probability
df = 2

More Employees (86.0%) responded that they thought the company should provide the A Job Posting System than did Upper-Managers (74.5%). More Upper-Managers (98.0%) compared to the other two groups, Employees (91.7%) and Line-Manager (93.6%), thought that the Job Rotation Programs should be provided by the company. Employees (91.7%) were more likely than Upper-Managers (86.5%) to express that they thought the company should provide Midcareer Development Programs. More Employees (82.4%) thought that the Flexible Work Schedules should be provided in the company as compared to Upper-Managers (70.2%). More Employees (86.7%) surveyed stated that they thought the company should provide Policies That Are Designed to Better Accommodate the Needs Of Dual-Career Couples, as compared to the Line-

Managers surveyed (80.4%). Upper-Managers (80.8%) were less likely than Employees (88.0%) to respond that they thought Dependent Care Services should be provided. More Line-Managers (34.7%) compared to the other two groups, Employees (26.0%) and Upper-Managers (24.3%), thought that the company should not provide Job-Sharing Programs. More Employees (82.4%) responded that they thought Career Advisers or Functional Representatives should be provided in by the company than did Upper-Managers (72.6%).

Summary

The sample was first examined in terms of demographic data. Demographic information concerning the respondents' Job Functions, Job Roles, Gender, Ages, and Education were illustrated to provide an understanding of the sample in this study. The sample was judged to be a good reflection of the population.

Means, standard deviations, and rankings of career development program needs perceived by respondents with different job functions and job roles in terms of their current and future positions were obtained. Separate factor analyses of the perceived needs for 33 career development programs in terms of current and future positions produced six constructs of career development programs.

MANOVA and post hoc tests (DDAs and univariate ANOVAs) were conducted to analyze differences among sub-groups based on Job Function, Job Role, Gender, Age, and Education. Differences in perceived career development program needs were found among these sub-groups.

Chi-square tests were employed to determine if individuals who differ in terms of

Job Function and Job Role have different opinions on whether the selected career development programs were already provided or should be provided by the company. More significant differences were found for Job Role than in terms of Job Function.

CHAPTER V

SUMMARY, DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The intent of this chapter is to present a summary of the present study, discuss the findings, state conclusions, and make recommendations.

Summary

Purpose and Research Questions

This study was designed to investigate TPC white-collar employees' perceptions of career development program needs. The purposes of the study were (a) to identify the white-collar employee's perceptions of career development program needs in terms of different job functions and job roles; (b) to explore the underlying constructs among present and future positions in regard to the employee's perceptions of career development program needs for selected career development programs; (c) to investigate the differences among perceptions of career development needs in terms of different job functions and roles; (d) to determine whether or not differences among perceptions of career development program needs exist among respondents who differ in terms of demographics, including gender, age, and education; and (e) to discover if individuals who differ in terms of job functions and job roles have different opinions on whether the selected career development programs were already provided or should be provided by the company.

Analyses for this study were guided by the following research questions:

1. What are the TPC white-collar employees' perceptions of career development program needs in terms of their Job Function (Technology, Management, and Business/Sales)?
2. What are the TPC white-collar employees' perceptions of career development program needs in terms of their Job Role (Employee, Line-Manager, and Upper-Manager)?
3. What are the constructs underlying the perceived career development program needs assessed via the questionnaire?
4. Are there differences in the perceived career development program needs among the TPC's white-collar employees in terms of their Job Function and Job Role for their current positions?
5. Are there differences in the perceived career development program needs among the TPC's white-collar employees in terms of their Job Function and Job Role for their future positions?
6. Are there significant differences among perceptions of career development needs for individuals who possess different demographic variables of Gender, Age, and Education?
7. Are there differences in the proportions of respondent who perceived that the company already provided the selected career development programs?
8. Are there differences in the proportions of respondents who perceived that the company should provide the selected career development programs?

Review of Literature

A literature review focusing on the areas which were directly related to the specific factors relevant to this study contained: (1) a brief overview and synthesis of principle concepts of organizational career development systems, (2) a review of the planning models of career development programs and needs assessment in organizations, (3) a review of literature specifically associated with components of organizational career development programs, and (4) a brief introduction to the current practices of career development in Taiwan.

Methodology

This was a descriptive study in which data from members of a population were surveyed in order to determine the status of that population regarding one or more characteristics. A questionnaire entitled, Career Development Needs Assessment Survey, was developed based on previous studies and was used to determine the perceived career development program needs of the white-collar employees in the TPC. The questionnaire contained three sections: perceptions of career development program needs for the current and future position, the respondent's perception of whether the company was providing, or should provide such career development programs, and personal data. The first section of the questionnaire was developed to request the respondents' perceptions of career development program needs based on a list of career development programs. The questionnaire contained 33 items, which were modified from prior relevant studies (Russell, 1991; Leibowitz, Farren, & Kaye, 1986). The second section of the questionnaire was constructed to request the respondents'

perceptions regarding whether the company already provided or should provide the 33 career development programs. The personal data sheet section was constructed for requesting the demographic information of the subjects.

In order to establish the validity and reliability of the instrument and collect the data for the study, six steps were taken and included (1) securing the permission of the relevant authorities, (2) submitting the questionnaire to a U.S panel of judges, (3) interviewing a top management and human resource personnel regarding the intention of the study and questionnaire, (4) inviting seven TPC middle managers to review the questionnaire and present the revised version based on their critiques and suggestions, (5) conducting a pilot test with 36 employees representing the three different job functions (Technology, Management, and Business/Sales) using the questionnaire refined in the previous steps and formulating the final revision according to their opinions and suggestions, and (6) administering the final instrument to the target sample.

The population for this study was 14,850 white-collar employees who could be further classified in terms of Job Function and Job Role based on the statistics provided by the personnel department in the TPC. White-collar employees who numbered 1636 were selected through a stratified random sampling across Job Function (Technology, Management, and Business/Sales) and Job Role (Upper-Manager, Line-Manager, and Employee). Data were collected by means of interoffice mail and human resource representatives at each division. An overall response rate of 82.5% was obtained based on 1351 returned questionnaires.

Data collected from the questionnaire were analyzed to answer the research

questions in this study. Descriptive statistics, such as frequencies and percentages, were used to analyze and assess demographic information collected from the Personal Data Sheet in order to provide a profile of respondent's characteristics. To answer Research Questions 1 and 2, descriptive techniques were used to analyze the means, standard deviations and rank orders for each questionnaire item. To answer Research Question 3, Principal Component Analysis with Varimax rotation was performed to explore the underlying constructs of perceived career development programs needs. To answer Research Questions 4 and 5, separate two-way MANOVAs were conducted to compare the perceptions of career development program needs. In addition, both DDA and univariate ANOVAs were applied as follow-up procedures if there were any significant differences in MANOVA results. Three separate one-way MANOVAs for Gender, Age, and Education were employed to answer Research Question 6. Two follow-up tests, DDA and univariate ANOVA, were also employed. Lastly, separate Chi-Square tests were utilized to answer Research Questions 7 and 8.

Findings and Discussion

Research Question 1

What are the TPC white-collar employees' perceptions of career development program needs in terms of their Job Function (Technology, Management, and Business/Sales)?

Findings

Generally speaking, in terms of perceptions of current career development program needs, the top three perceived needs were: (1) Tuition Refund Programs, (2) On-The-Job Training/ Internal Training, and (3) Employees' Service Record. The least perceived needs were: (1) Salary Reduction, (2) Dependent Care Services, and (3) Job-Sharing Programs.

The highest and most common perceived career development program needs for the current positions identified by employees among three types of job functions (Technology, Management, Business/Sales) were related to: (1) Tuition Refund Programs, (2) On-The-Job Training/ Internal Training, and (3) Employees' Service Record, whereas the least perceived career development program needs for employees' current positions were: (1) Salary Reduction and (2) Dependent Care Services.

In terms of perceived career development program needs for future positions, generally, the top three perceived needs included: (1) Tuition Refund Programs, (2) On-The-Job Training/ Internal Training, and (3) Midcareer Development Programs. When analyzing the perceived career development program needs for future positions according to respondents' job functions, the highest perceived needs were: (1) Tuition

Refund Programs, (2) On-The-Job Training/ Internal Training, and (3) Midcareer Development Programs. Conversely, the two programs, Salary Reduction and Dependent Care Services, were perceived by respondents with different job functions as being the least needed for their future positions.

Discussion

The employees among the three types of job functions all agreed that Tuition Refund Programs, On-The-Job Training/ Internal Training, and Employees' Service Record were career development programs that they perceived as being high needs for their current positions. The results are consistent with previous research efforts by Tsai (1994), who studied the relationships between organizational culture, employees' career anchors, career development needs, and job satisfaction. Tsai conducted a survey of 459 employees across six types of industries in Taiwan and found that surveyed employees expressed extremely high career development program needs for training and development.

Internal and external environmental turbulence (due to technological change, liberalization of the power industry, privatization policies, and reducing staffing levels) have brought substantiated pressure on employees in companies to sharpen their abilities, skills, and knowledge. Developmental programs such as on-the-job training and tuition refund are viewed as effective ways to sharpen employees' skills and improve their performance.

International competition, rapidly advancing technology, and organizational restructuring, are all factors causing employees to learn new skills for improving their

performance and fulfilling job requirements. Since technological change has spawned rapid changes in the occupational composition of the work place (Conger, 2002), it seems reasonable that employees across all job functions would express a great demand for programs for facilitating skills improvement, such as tuition refund programs and on-the-job training programs. Graham & Nafukho (2004) reported that a majority of human resource managers perceived that tuition reimbursement programs were very effective in promoting career development of employees. This was followed by provision of in-house training and development programs. It is apparent from these results that a company which provides programs with respect to on-the-job training and tuition refund are perceived as being effective in satisfying the needs of employees' career development. In addition, most companies provide some resources, to help employees make the transition to guiding their careers, including job-posting systems, tuition reimbursement, career development seminars, and mentoring programs (Flynn, 1994).

Another career development program that has been perceived as a high needs area for individual employees is an Employees' Service Record. Employees' Service Records are used to help organizations identify the characteristics of the work force so that the skills of the employees can be more readily utilized by the organization, training can be provided based on those employees lacking the needed skills, and the manpower demands and capabilities can be easily forecasted and anticipated (Russell, 1991; Leibowitz et al., 1986; Zeitz & Dusky, 1988). Employees' individual data, including experiences, educational level and professional specialties, are recorded by employers in order to assign the appropriate positions based on employees' skills. On the other hand,

employees can notice aspects in which they might need more training or experience if they want to achieve their career goals, and begin to obtain additional training and experience (Leibowitz et al., 1986).

In terms of career development program needs that were perceived as not being of substantial utility, Salary Reduction was the most often mentioned program. This program was indicated as the lowest need by white-collar employees of the TPC. Even though this program was offered as an alternative to possible lay-offs, the employees were unwilling to accept a lower pay status. It is not surprising that the majority of the employees would view such a program as a distasteful alternative in that employees in most organizations would not be in favor of reduced pay.

Job sharing refers to two employees splitting the work and responsibilities of one full-time job in order to cope with the policies of down-sizing or accommodating employee individual needs. However, the likelihood is high that problems with accountability and scheduling will result from sharing a job between two employees. This is one possible explanation as to why employees didn't express high needs for this program.

More than 60 percent of the respondents were over 40 years old. This may be the reason why the Dependent Childcare Services was perceived as less needed by respondents compared to the other career development programs. Since Taiwanese parents have their children when they are below 30 years old, their children are in the school years when the employees become 40. Dependent child care was no longer perceived as a high need item for them.

Research Question 2

What are the TPC white-collar employees' perceptions of career development program needs in terms of their Job Role (Employee, Line-Manager, and Upper-Manager)?

Findings

In terms of perceived career development program needs for the current positions, the three highest needs perceived by Employees were Tuition Refund Programs, On-The-Job Training/ Internal Training, and Mentoring Programs, Whereas Salary Reduction, Career Simulation & Assessment Centers, and Job-Sharing Programs were perceived to be the lowest needs.

The top three career development program needs perceived by Line-Managers included Employees' Service Record, Tuition Refund Programs, and On-The-Job Training/ Internal Training, whereas the three lowest perceived needs were Dependent Care Services, Salary Reduction, and Job-Sharing Programs. The top three career development program needs expressed by Upper-Managers included Employees' Service Record, Succession Planning, and Incentives for Early Retirement, whereas, Dependent Care Services, Salary Reduction, and Flexible Work Schedules were expressed to be the least needed by them.

The three groups of respondents (Employees, Line-Manager, and Upper-Manager) agreed that On-The-Job Training/ Internal Training was a relatively high perceived career development need. Salary Reduction was a low perceived career development need.

In terms of the perceived career needs for the future positions, the three top perceived career development program needs rated by the Employees were related to Tuition Refund Programs, On-The-Job Training/ Internal Training, and Midcareer Development Programs. The three career development programs rated by them as the least needed were Salary Reduction, Job-Sharing Programs, and Career Simulation & Assessment Centers. The three highest perceived career development needs identified by Line-Managers were related to Tuition Refund Programs, On-The-Job Training/ Internal Training, and Employees' Service Record. Their three lowest perceived needs were related to Dependent Care Services, Salary Reduction, and Job-Sharing Programs. The three career development programs identified by Upper-Managers as the top needs were Incentives for Early Retirement, Employees' Service Record, and Preretirement Counseling Workshops, whereas the three career development programs rated by them as the lowest needs were Dependent Care Services, Salary Reduction, and Paid And Unpaid Parental Leave.

The agreement reached by the three groups of respondents was that On-The-Job Training/ Internal Training was a relatively high perceived career development need for respondents' future positions. Salary Reduction and Dependent Care Services were perceived as being relatively low career development needs.

Discussion

Although there was agreement among the employees across the three job roles that On-The-Job Training is a high career development need for their current positions, a discrepancy among the Employees, Line-Managers, and Upper-Managers was found

when examining the results. The career development program for Succession Planning and Incentives for Early Retirement appeared as being important needs for Upper-Managers, neither one of these career development needs appeared in the top five lists for Employees and Line-Managers. A Career Resource Center was rated as a high need for Employees and Line-Managers but not Upper-Managers. Career resource centers, containing career development material such as magazines, reference books, learning guides, and self-study tapes, have been set up to facilitate employees learning about career development, understanding their organization, undertaking realist self-assessment, and planning for future careers (Leibowitz, Farren, & Kaye, 1986; Russell, 1991). It seems that such programs are more plausibly used by Employees and Line-Managers. Several large-scale enterprises, such as General Electric, U.S. General Accounting Office, and Mountain Bell Telephone Company, have provided career resource centers for their employees (Russell, 1991; Jackson & Vitberg, 1987; Gutteridge & Otte, 1983).

Dissimilar to the above career development programs, respondents expressed a relatively low need for the Career Simulation & Assessment Centers. Assessment centers are designed to evaluate employees' strengths, weaknesses and their career orientation and help employees to develop their future career goals through conducting employee evaluation and simulation activities, including tests, interviews, and group discussions. Nevertheless, considering the daily workloads and limited time, the additional time and efforts required for these exercises may be anticipated by employees as disturbing the work schedule and adding to workloads. Thus, it is reasonable that employees didn't

attach a high need to this career development program.

The fact that Upper-Managers expressed Incentives for Early Retirement as a high need for their current positions may result from the fact that most of the Upper-Managers were above 50 years of age. They might retire early to devote more time to family life, especially since the current trend of emphasizing leisure time has become prevalent in Taiwan. These incentive programs have been provided in U.S. companies, e.g. IBM and Sears, which offer their employees enhanced benefits and some positive incentives in order to encourage older employees to retire early (Russell, 1991).

Furthermore, the TPC Upper-Managers perceived relatively high career development program needs for Job Rotation Programs. Job rotation programs not only were rated as a high demand for the career development by the TPC upper-mangers, they have also been widely recognized as a function for improving managerial performance as well. Longenecker and Neubert (2003) undertook a study to identify the most important practices for improving managers' in the context of rapidly changing organizations by surveying 524 managers from the USA. Job rotation was viewed as a useful practice for improving managers' overall performance. Champion and Cheraskin (1994) pointed out that job rotation not only can provide the managers with opportunities to learn and develop new skill sets, but can also improve their understanding of interrelationships between jobs within the organization as well.

In terms of career development program needs for future positions, Incentives For Early Retirement were perceived to be a high need for both Upper-Managers and Line-Mangers. Preretirement Counseling Workshops were also expressed by the Upper-

Managers as being needed. As was mentioned earlier, most of the Upper-Managers were close to or over 50 years of age and since the legal retirement age is 65 in Taiwan, it seems reasonable that concerning their up-coming career stages, Upper-Managers perceived substantial need for this career program. Preretirement counseling programs are designed to facilitate preretirees' understandings of the life and career concerns for preparation of retirement. The positive outcomes, such as maintaining preretirees' positive attitudes and performance and successful adjustment to retirement, have been demonstrated in the relevant research (Russell, 1991).

Research Question 3

What are the constructs underlying the perceived career development program needs assessed via the survey/questionnaire (Career Development Needs Assessment Survey)?

Findings

In terms of employees' current career development program needs, six factors emerged from the exploratory factor analysis of 33 career development programs. The six factors identified by the researcher were based upon the content of the items and prior relevant researches. The six factors were named: (1) Career Information, Resource And Assessment Programs, (2) Career Programs for Special Target Groups, (3) Programs to Assist Employed Spouses and Parents, (4) Programs for Development and Professional Growth, (5) Programs for Potential Assessment Process, and (6) Salary Reduction.

In terms of employees' perceptions of career development program needs for future positions, six factors were also extracted from the factor analysis of 33 career development activities. The factors were named by the researcher as: (1) Career Information, Resource, and Assessment, (2) Career Programs for Special Target Groups, (3) Programs for Development and Professional Growth, (4) Programs for Potential Assessment Process, (5) Programs to Assist Employed Spouses and Parents, and (6) Salary Reduction.

Discussion

Factor I (Career Information, Resource and Assessment Programs) was found to be important by previous researchers. Seven of the nine career programs in Factor I are the same items as the first factor reported in Hoffman's (1997) factor analytical study of the employee's perceived obligations for career development in the U.S.A. This factor indicates the internal labor market information/ placement exchange opportunities in the company. (e.g. Employees' Career Paths Design, Career Resource Center, Career Counseling, and Job Posting System). In addition, Career Planning Workshops, Career Workbooks, Career Simulation & Assessment Centers, and Psychological Testing for Vocational Interests and Work Attitudes are identified as the self-directed activities for individual self-assessment in order to allow employees to undertake the career development process in accordance with their own needs and desires. Methods to assess and offer valuable information for organizations about employee career development needs were posited by Gutteridge (1986), Russell (1991), Hoffman (1997), and Leibowitz, Farren, & Kaye (1986). The programs in the first factor which were related to

career information, resource, and assessment accounted for the most variance (nearly 15%). This indicates employees' perceive a need for more information and resources regarding career development, and are interested in self-assessment for knowing more about their career interests and attitudes. Thus, Factor I was name Career Information, Resources, and Assessment.

In a study of 926 employees from a manufacturing firm, Rothenbach (1982) indicated that employees who vary in demographic backgrounds have different career interests, and organizational career programs need to meet the needs of their various employee groups. Factor II (Career Programs For Special Target Groups) reflects this point by representing the career development programs which are designed for the specific groups or employees at specific career stages in the organization, such as preretired workers and older workers (Preretirement Counseling Workshops, Supervisors Workshops On Older Worker Issues, and Incentives For Early Retirement), terminated employees (Outplacement Programs), supervisors (Career Counseling Training), and women and minority employees (Special Programs for Women and Minorities). The career development programs for special target groups accounted for the second dominate variance and suggests the attached importance of the needs for specific groups in the company. Factor II was called Career Programs For Special Target Groups.

Factor III (Programs to Assist Employed Spouses and Parents) involves a strong association with work and family initiatives and addresses the perceived needs of employed spouses and parents for Dependent Care Services, Paid and Unpaid Leave, Job-Sharing Programs, Work-Family Programs, Flexible Work Schedules, and Policies

for the Needs of Dual-Career Couples. This factor is consistent with Russell's (1991) categories for intervention of organizational career development about the programs to assist employed spouses and parents, and the fourth factor reported by Hoffman (1997). Hence, Factor III was named Programs To Assist Employed Spouses and Parents.

Factor IV (Career Development Programs for Professional Development and Growth) is mostly related to the career development programs which assist employees to develop and improve their job skills and performance. The developmental program according to Russell's (1991) and Gutteridge's (1986) perspectives included mentoring programs, job rotation programs, tuition refund programs and internal training program. Developmental programs comprise the skills assessment and different kinds of training programs in order to provide opportunities for professional growth and development and prepare for future positions (Gutteridge 1986 and Russell, 1991). Factor IV was therefore labeled as Career Development Programs For Development and Professional Growth.

Factor V contains the career development programs associated with potential assessment processes for assessing employees' career potential (Gutteridge, 1986; Gutteridge, Leibowitz & Shore, 1993). Promotability Forecasts and Succession Planning both involve providing developmental activities for high-potential individuals in order to groom them for higher positions or determine several backups for senior positions. Future Forums and Career Advisers or Functional Representatives are in response to the employees needs for current and future career development opportunities outside and within the organization (Leibowitz, Farren & Kaye, 1986). Factor V was named

Programs for Potential Assessment Processes.

Factor VI consists of only one career development program—Salary Reduction. Conventional factor analytical protocol would suggest deletion of this factor (Thompson, 2004). However, there are three reasons for retaining this factor. Although it only accounted for 3.5% variance, the Eigenvalue was greater than 1.0 and the factor loading for this program was 0.79. This career development program is the only one which constitutes a negative impact for employees even though it presents an alternative to the possibility of being laid off or the negative consequence of organizational streamlining. In addition, the program could be partly explained by employees' concerns for the recent economic recession in Taiwan and privatization policies in the organization.

Comparison of Career Development Needs for Current and Future Positions

A comparison of the results of the factor analysis for perceived career development program needs for current and future positions points to a different pattern of factor information for employees' present needs and future needs for career development programs.

The items contained in the first and second factors for the career development program needs for future positions are identical with the results of the current career development needs, except for Item 1—On-The-Job Training/ Internal Training—which emerged in the first factor of the future career needs. Hence, Factor I (Career Information, Resources, and Assessment) and Factor II (Career Programs for Special Target Groups) are stable in the results of the two factor analyses, and indicate that they are the most important factors for employees' consideration of career development

program needs in regard to current and future positions. However, Item 1—On-The-Job Training/ Internal Training—which appeared in the fourth factor in current career needs, appeared in the first factor in regard to future position needs and possessed an increased loading at the same time.

Factor III in the future career needs was found to be Programs for Development and Professional Growth, which was identified as Factor IV in the current career needs. The result could be explained in that the professional development needs are perceived to be more important for future positions than in the current. This may reflect that employees consider professional development to be important in order to meet the needs for future positions.

Factor IV, Programs for Potential Assessment Processes, presented in the factor analysis with regard to the career development program needs for future positions, was different from the current career development program needs. Two items, Psychological Testing and Career Simulation & Assessment Centers, moved from Factor I in current career development program needs to Factor IV in future career development program needs. The result corresponds with Gutteridge's (1986) categorization in regard to the career development programs for potential assessment processes. The Career simulation & assessment centers can be used to evaluate the capability of employees to assume managerial responsibilities at higher levels, while the psychological testing can serve as an important technique for executive selection.

The factor related to assisting employed spouses and parents moved downward to the fifth factor in future career position needs. This may imply that the need for

balancing work and family issues are perceived to decrease in future positions.

The program of Salary Reduction was detected as the last factor and consisted of only one component for both current and future career needs. This finding may reveal that employee's concerns about the organization's restructuring and the current economic recession in Taiwan will have an impact on their present and future career development.

Research Question 4

Are there differences in the perceived career development program needs among the TPC white-collar employees in terms of their Job Function and Job Role for their current positions?

Findings

In terms of perceived career development program needs for current positions, no significant multivariate interaction effects were found between Job Function and Job Role. However, significant differences were found for both Job Function and Job Role. The results found from the DDA showed that the differences among three job functions were mainly on Item 1 (Training to Perform the Current Job), Item 13 (Job Rotation Programs), Item 14 (Tuition Refund Programs), Item 15 (Mentoring Programs), and Item 33 (Career Advisers or Functional Representatives), whereas the differences among the three job roles were on Item 8 (positive correlated with A Job Posting System), Item 14 (positive correlated with Tuition Refund Programs), Item 24 (negatively correlated with Career Counseling Training for Supervisors), and Item 29 (positive correlated with Dependent Care Services).

With respect to the results obtained from the univariate analyses, although no statistically significant differences were found among the three levels of Job Function (Technology, Management, and Business/Sales) in the perceptions of needs of the 33 career development programs, statistically significant differences were found among the three levels of Job Role (Employees, Line-Managers, and Upper-Managers) for the perceptions of needs for 12 of the 33 career development programs. Nine of the 12 significant programs (On-The-Job Training/ Internal Training, Job Posting System, Tuition Refund Program, Flexible Work Schedule, Policies That Are Designed to Better Accommodate the Needs Of Dual-Career Couples, Paid and Unpaid Parental Leave, Dependent Care Services, and Career Advisers or Functional Representatives) were obtained because Employees perceived them as higher needs than did the Line-Managers and Upper Managers. On the other hand, three of the 12 significant programs (Supervisors Workshops on Older Worker Issues, Succession Planning, and Career Counseling Training for Supervisors) were detected in that Upper-Managers and Line-Managers perceived them as higher needs than did Employees.

Discussion

Technical employees showed stronger needs for career development programs pertaining to development and professional groups than individuals in the other two groups. Compared to the employees in the classifications of Management and Business/Sales, technical employees are more likely to encounter the stress resulting from the lack of up-current technical knowledge and skills that are required to perform job assignments effectively (Leibowitz, et al. 1986). This provides an explanation that

technical employees express stronger needs for those career development programs which can offer them opportunities for professional development and keeping their skills and knowledge up to date. Additionally, according to Noe's study (1996), different occupation types may have various development expectations. Technical employees show significantly more development behavior than managerial or clerical employees (Noe, 1996). Furthermore, professional employees are more likely to believe that development opportunity involves pursuing more demanding job assignments; however, non-professional employees believe the development opportunities involve advancement (Kanter, 1989). These findings obtained from the previous studies parallel the findings in this research that technical employees show more interest in career development programs involving more development opportunities.

When comparing the differences among the three job roles, Employees expressed higher career needs than Upper-Managers and Line-Managers with respect to On-The-Job Training Programs, A Job Posting System, Tuition Refund Programs, Career Advisers or Functional Representatives, Policies Associated with Dual-Career Couples, Paid and Unpaid Parental Leave, Dependent Care Services, and Flexible Work Schedules. As stated previously, aside from the growing turbulence in the external and internal environment leading employees to give emphasis to the programs associated with training and development, unlike the managers, employees have a desire to develop their skills for coping with tasks required in their future or advanced positions.

An examination of crosstabulation of Job Role by Age provides further insight into the explanation of career needs. The crosstabulation frequencies of Job Role by Age is

given in Table 5.1. More than half of the Employees were between the ages of 31 to 51 which would be classified as the career stages of “establishment” and “advancement” (Hall, 2001); whereas, the majority of the Upper-Managers were 51 and above and would exhibit career stages of “maintenance” or “decline”.

Table 5.1 Crosstabulation of Respondents’ Job Role by Age

Age	Job Role			Total	Percentage
	Employee	Line-Manager	Upper-Manager		
21~30	65	1	1	67	5.01
31~40	238	31	0	269	20.12
41~50	337	171	41	549	41.06
51~60	161	149	88	398	29.77
60 and above	7	11	36	54	4.04
Total	808	363	166	1337	100.00

It is assumed that most Employees in the company were in their career stages of “establishment” and “advancement” in which the employees are striving to achieve professional knowledge and make an effective contribution to the organization, and further to enhance their promotional prospects by improving their performance (Hall, 2001; Super, 1996; Chen, Chang, & Yeh, 2004). The implementation of On-The-Job Training Programs and Tuition Refund Programs can meet the special needs of employees during these career stages (Chen, Chang, & Yeh, 2004).

The Job Posting System satisfied the career needs of employees who are in the “establishment” or “advancement” career stages and are looking for advanced positions or opportunities through informing them of available positions or vacancies in the company. However, the vacancies of management positions were traditionally not

posted in the company. Aligning a job posting system with the processes of internal selection and promotion can satisfy organizational needs when quality personnel exist and particular managerial positions are vacant. The use of a job posting system also serves as an extensive indication to employees that the company prefers internal promotion rather than recruiting managers from outside (Baruch, 1999; 1996). Managers expressed lower needs for this program because they are more likely to be well acquainted with the organization decisions, policies, procedures and sources of information (Leibowitz, Farren, and Kaye, 1986). Ganakas (1982) conducted a study to investigate middle managers' perceptions concerning factors and conditions necessary to implement and adapt a career development program within an organization. The result indicated that most of the managers in the study expressed job posting as an effective communication tool for initial entry or lower level positions.

Unlike the managers, the information regarding job requirement and opportunities for other divisions might not be clearly known or communicated to non-manager employees. In response to the employees' needs for advancement or accurate career information, career advisers or functional representatives can offer employees information regarding job requirements and opportunities of the division.

Recently, with the continuing growth in education and equality in employment, there are increasing numbers of two-income households in Taiwan. Unlike the traditional women, an increasing number of women choose to enter the workforce rather than play traditional roles of taking care of the families and their dependents. Thus, Employees expressed desires for programs, such as Policies Associated with Dual-

Career Couples, Paid and Unpaid Parental Leave, Dependent Care Services and Flexible Work Schedules, which are attempts to assist them in coping with the challenge and conflicts faced by dual-career couples. On the contrary, some of the senior managers were reared in traditional families and they are most likely to have traditional marriage values where the wife is not employed (Russell & Guinn, 1987). As a result, the managers placed limited demands on programs to cope with dual-career issues.

Mentoring Programs were perceived as a higher career development program need by Employees than did Upper-Managers. Mentoring is viewed as developmental programs which involve bringing together senior and experienced employees with junior or inexperienced employees (protégés) to develop learning partnerships (Gibb, 1999). Protégés can achieve their professional or career goals through receiving advice from their mentor on how to develop specific skills and knowledge (Kim, 2003). This kind of developmental strategy satisfies those demands from employees, especially for those who are in the exploration stages, and place a substantial emphasis on developing professional skills and fulfilling the job requirements and expectations related to the company's values. Dissimilar from the Employees, Upper-Managers, with extensive professional knowledge and being involved with organizational policy decisions, are unlikely to count on the mentoring relationships. With the body of mentoring literature, the benefits resulting from implementing mentoring has been widely recognized, including improved recruitment and induction procedures, leadership development, improved succession planning, increased organization commitment, and individual career success (Joiner et al, 2004; Clutterbuck, 1991; Scandura, 1997; Orpen, 1997).

Upper-Managers expressed higher needs for Succession Planning than Line-Managers and Employees. This result is consistent with Tsai' study (1997), in which 286 Taiwanese managers were surveyed to explore their career development needs. It was found that succession planning was perceived as a high need among those managers. Concerning the vacancies due to the retirement or advancement into another position, upper-managers are more apt to desire a program in a manner that talented and qualified employees are selected to replace their positions and develop organizational leadership as well as the management executives who are going to carry out the company strategies. Succession planning is mainly directed towards the managerial workforce (Baruch, 1999; Huang, 2001). Owing to widespread restructuring and an aging workforce, succession planning has been recognized as an important strategic planning that is meant to enhance public-sector performance and accountability (Kim, 2003). Kim (2003) conducted a survey of 186 employees in a U.S. public sector for measuring employee attitudes toward career development and perceptions of succession planning. The results indicated that employees perceived succession planning as an appropriate personnel management tool for general career development decisions as well as for executive positions. Given the result from Kim's study, succession planning can provide employees with effective opportunities for career and leadership development. In addition, the positive outcomes of implementing the succession planning include lower employee turnover rates, improved employees morale, placing the most qualified candidates in key positions, reducing attrition of high-fliers, and allowing for more realistic counseling and planning (Johnson et al., 1994; Wallum, 1993). Notwithstanding the enormous benefits resulting

from conducting succession planning, succession planning has not been as widely dispersed among corporations in Taiwan as it has in Western countries (Huang, 2001). Huang explained that the reason is that promotion decisions in some corporations usually depend on who one knows rather than on what one knows. Although the tendency for promotion decisions to rely on personal relationships exists in the Taiwanese organizational culture, a well-design succession plan needs to be provided in the large-scale public sector, like the TPC, for the success and long-term development of the organization as well as establishing a benchmark for other corporations.

Supervisors Workshops on Older Worker Issues received more demand by Upper-Managers than by Employees. It is apparent from the results of the crosstabulation analysis that the majority of Upper-Managers are over 51 years old. Workshops on older worker issues are carried out for heightening managers' awareness of the psychological, physical, and legal issues surrounding older workers and developing plans with an intention to improve the performance of employees over 50 years old (Russell, 1991).

Managers not only need to serve four roles, including coach, advisor, performance appraiser, and referral agent, with their subordinates, but also play an active role, as career counselor, in the career development of their employees; since they are not only more knowledgeable about their subordinates' abilities, experiences, and skills, but also they are quite knowledgeable about the company environment and its developmental practices (Leibowitz, Farren, and Kaye, 1986). Therefore, managers are able to introduce the company's resources and programs and give advise as well as assistance to their employees about employees' career directions. However, not all managers are well

acquainted with conducting career counseling and helping employees undertake the steps in the development process (Leibowitz, Farren, and Kaye, 1986). In Ganakas's study (1982), the researcher found that the majority of managers in his study expressed an interest in counseling training. As a result, the training of managers on career counseling is essential and received a relatively extensive demand by TPC's managers.

Comparison of DDA & ANOVA

The different variables that were identified in utilizing DDA and ANOVA were summarized for Research Question 4, 5 and 6 in Tables 4.15, 4.20, 4.26, 4.31, 4.42, 4.48, 4.54, and 4.60.

Observing the post hoc comparisons for Research Question 4 in terms of Job Function for current positions, the collectiveness of Items 1, 13, 14, 15, and 33 were brought forward by DDA while none of the Items reached significance for ANOVA, while these 5 items were weighted high relative to the other 28 items, the function only accounted for 7.5 percent of the between group variability. This difference in results is a manifestation of the use and non-use of intercorrelations in the two procedures.

In terms of the post hoc results for Job Role for current positions, 12 variables were identified via ANOVA and four items were identified by DDA. The four items (8, 14, 24, and 29) resulting from the DDA were also common to the ANOVA results. If the very conservative Bonferroni α of .002 had been used in the ANOVA procedure, Items 15, 19, 22, and 33 would not have emerged from the ANOVA results and the two post hoc procedures would have produced the same results. The four common items were essentially orthogonal to each other and thus the amount of information shared by the

variables was very low. Since intercorrelation is not present for these items, it is reasonable that the solutions were comparable.

Research Question 5

Are there differences in the perceived career development needs among the TPC white-collar employees in terms of their Job Function and Job Role for their future positions?

Findings

No significant multivariate interaction effects were found between Job Function (Technology, Management, and Business/Sales) and Job Role (Employees, Line-managers, and Upper-managers). However, significant differences were found for both Job Function and Job Role. The discriminant function, used to probe the group differences following the significant MANOVA test, revealed that respondents with different Job Function mainly varied on Item 13 (Job Rotation Programs), Item 14 (Tuition Refund Programs), and Item 33 (Career Advisers or Functional Representatives) and respondents with different Job Role mainly varied on Item 8 (A Job Posting System), Item 18 (Midcareer Development Programs), Item 27 (Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples), Item 28 (Paid and Unpaid Parental Leave), and Item 29 (Dependent Care Services).

In terms of univariate post hoc tests, statistically significant differences were found among the three job functions in the perceptions of needs for only two career development programs. Respondents in the classification of Business/Sales had a higher mean score for Job Rotation Programs and Dependent Care Services than those in the

classifications of Technology and Management. Statistically significant differences were also found among the three job roles for the perceptions of needs for 11 career development programs. Employees compared to Line-Managers and Upper-Managers exhibited higher mean scores for seven of the 11 significant career developments programs (A Job Posting System, Midcareer Development Programs, Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples, Paid and Unpaid Parental Leave, Dependent Care Services, Realistic Job Previews and Introduction of Company, and Tuition Refund Programs). Upper-Managers relative to the mean scores for Employees and Line-Managers resulted in lower mean scores for four of the 11 significant career development programs, including On-The-Job Training/ Internal Training, Mentoring Programs, Flexible Work Schedules, and Career Advisers or Functional Representatives,.

Discussion

The results obtained from this research question are similar to the results gained from Research Question 4. Respondents in the classification of Technology expressed greater needs for those career development programs related to development and professional growth for their future positions.

Similar to the results obtained for current career development program needs, Employees demonstrated higher needs than Managers for the programs associated with training and development, information of career and job opportunities, and assistances for dual-career couples. It is noteworthy that concerning future career stages, Employees shifted their demand to mid-career development programs. This reveals the fact that in

the future, increasing numbers of employees are going to become midcareer employees in the company. Middle-career stage has been defined as “the period during one’s work in an occupational (career) role after one feels established and has achieved perceived mastery and prior to the commencement of the disengagement process” (Hall, 1986, p. 127). Several challenges may be encountered by the employees in middle-career stages, including confrontation and reassessment of their earlier career decisions, changes within career roles, plateaued obsolescence, and confrontation with midlife psychological problems (Hall, 1986; Greenhaus, 1987; Schein, 1978; Russell, 1991). Mid-career development programs containing some activities with an attempt to promote effective career development among midcareer employees and to prevent plateauing and obsolescence are suitable for meeting the needs of the TPC employees with preparation for their future career stages.

Upper-Managers are familiar with human resource planning for the whole organization, are knowledgeable about organizational environment and development resources, typically engage in the decision making for the direction and strategies of future organizational developments, and reach a relatively higher achievement of career development as compared with the Employees and Line-Managers. These characteristics help explain why their needs for the career development programs such as On-The-Job Training, Mentoring Programs, Flexible Work Schedules, Realistic Job Previews and Introduction of Company, and Career Advisers or Functional Representatives are not as high as those of Employees and Line-Managers.

Comparison of Descriptive DDA & ANOVA

The post hoc results of the two procedures when applied to Research Question 5 in terms of Job Function for future positions contained only Item 13 in common. The DDA procedure also indicated high weightings for Items 14 and 33. Item 14 clustered with Item 13 in the factor analytical solution and Item 33 exhibited low correlations with all of the other items.

In terms of the ANOVA post hoc procedure, Items 13 and 29 were judged to be significant. Since Item 13 clustered with Item 14 and Item 29 was associated only with Item 28, the results the two post hoc procedures are essentially the same.

When applied to Research Question 5 in terms of Job Role for future positions seemingly divergent results were obtained for the two post hoc procedures. Seemingly, because upon closer inspection, the results are comparable. In terms of DDA, four items (8, 27, 28, and 29) were found to have high weights for differentiating employees who were classified by Job Role. The ANOVA post hoc procedure also identified these items as well as Items 1, 14, 15, 16, 18, 22, and 33.

Items 1 and 18 were found to have double factor loadings in EFA and would therefore have been deleted in many analyses. Items 14, 15, and 16 clustered together as the fourth factor in EFA. Item 22 is somewhat associated with Items 28 and 29. When these results are taken into consideration, the outcomes of the two post hoc procedures are seen to be more alike than different.

Research Question 6

Are there significant differences among perceived career development needs for individuals who differ in demographic variables in terms of Gender, Age, and Education?

Findings

In terms of perceived career development program needs for current positions, the results obtained from the post hoc procedure of DDA indicated that the major differences between Gender were in terms of Item 13 (Job Rotation Programs), Item 26 (Special Programs for Women and Minorities), and Item 27 (Policies That are Designed to Better Accommodate the Needs of Dual-Career Couples). Differentiation among age ranges were in terms of Item 1 (Training to Perform the Current Job), Item 14 (Tuition Refund Programs), Item 28 (Paid and Unpaid Parental Leave), and Item 8 (A Job Posting System), Item 15 (Mentoring Programs), Item 18 (Midcareer Development Programs), Item 29 (Dependent Care Services), and Item 17 (Reducing Salaries). In addition, the differences among respondents with different levels of Education were in terms of Item 15 (Mentoring Programs), Item 16 (Realistic Job Previews), Item 20 (Preretirement Counseling Workshops), and Item 26 (Special Programs for Women and Minorities).

With respect to the results from the univariate post hoc tests, Females expressed significantly higher career needs than Males for Career Programs for Women and Minorities and Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples. The older respondents perceived career development programs concerning Preretirement Counseling and Incentives for Early Retirement as higher

needs than younger respondents. The respondents who possessed a higher level of Education perceived lower career development program needs for Mentoring Programs, Realistic Job Previews and Introduction of Company, Preretirement Counseling Workshops, and Career Programs for Women and Minorities than the respondents who possessed an Education level of High School or Below. Respondents with the highest educational levels (Master or above) expressed higher needs on Job Rotation Programs than those in the other educational levels.

In terms of perceived career development program needs for future positions, the results from DDA indicated that the differentiation between gender groups was in terms of Item 8 (A Job Posting System), Item 12 (Succession Planning), and Item 26 (Special Programs for Women and Minorities). The major differences among respondents in different age ranges were in terms of Item 1 (Training to Perform the Current Job), Item 14 (Tuition Refund Programs), Item 28 (Paid and Unpaid Parental Leave), Item 18 (Midcareer Development Programs), Item 8 (A Job Posting System), Item 29 (Dependent Care Services), Item 17 (Reducing Salaries), Item 30 (Job-Sharing Programs), Item 4 (Individualized Career Counseling), Item 15 (Mentoring Programs), and Item 33 (Career Advisers or Functional Representatives). The differences among respondents in different levels of education were in terms of Item 18 (Midcareer Development Programs), Item 22 (Flexible Work Schedules), Item 23 (Special Development Programs for “Fast Track” or “High-Potential” Employees), Item 24 (Career Counseling Training for Supervisors), and Item 32 (Future Forums).

With regard to the results from the univariate analyses, Females expressed

significantly higher career needs for A Job Posting System, Career Programs for Women and Minorities, and Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples, whereas males perceived higher career development program needs for the program of Succession Planning. For all of the significant items (24 items), the older respondents expressed significantly lower needs than the younger respondents. The respondents who possessed an education level of Master's or Above perceived higher career needs for Succession Planning, Midcareer Development Programs, Flexible Work Schedules, Special Development Programs for "Fast Track" or "High-Potential" Employees, and Career Counseling Training for Supervisors than respondents who possessed a degree of High School or Below.

Discussion

With respect to the perceived career development program needs for current positions, Females demonstrated more needs for Career Programs for Women and Minorities and Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples. Women, compared to men, are more likely to encounter and absorb the difficulties of managing the balance between home life and career (Mallon & Cassell, 1999). Thus, it is logical that women would express more needs for the programs that assist them to overcome the difficulties of balancing their dual-roles in the workplace and family. In Mallon & Cassell's study (1999) of 100 women managers, the results revealed that women required practices that could facilitate them to adjust their career and home life and provide training to develop their career.

Generally speaking, older respondents expressed lower needs than younger respondents for the programs related to career resource, information, and assessment as well as the programs for development and professional growth, whereas they expressed more needs for the programs related to Preretirement Counseling and Incentives for Early Retirement. Since older employees are in the “decline” or “disengagement” stages of their career (Super, 1996), they gradually shift their career roles and identity outside of the working environment, return to their family life, and adjust their leisure time. Thus, it is reasonable that, unlike the younger employees, older employees expressed a greater perception of needs for career development programs that provide assistance with their retirement planning and adjustment. Moreover, respondents in the 21-30 and 31-40 age levels exhibited higher needs for programs associated with career information, assessment and development and programs designed to assist employees in managing their work and family life than respondents in the other age levels. Employees in the age levels of 21 to 30 and 31 to 40 are in the “exploration” and “establishment” stages of their careers (Super, 1996; Hall, 2001). On the one hand, they need to establish their own professional identity and improve their job performance to enhance their promotional possibilities; on the other hand, they need to maintain a balance between the demands of the jobs and the needs of their families (Chen, Chang, & Yeh, 2004; Hall, 2001, 1986). This may provide an explanation as to why younger respondents perceived higher needs for certain career development programs. The results that demonstrated the different perceived career development needs among respondents of different age levels support

the theory of career life stages which has been studied by several researchers in the last two decades (Super, 1996; Hall, 1986; Schein, 1978).

The statistically significant differences regarding perceived career development program needs among people of different educational levels that were obtained in this study parallel the work of Tsai (1994), who conducted a survey of 500 employees across different types of occupations in Taiwan, and Wei (1989), who investigated the status of implementation of career development programs in Taiwanese public sectors. They concluded that employees' perceived needs for career development varied with their educational level. In this study, respondents who possessed higher levels of education perceived lower needs for career development programs than respondents who possessed education levels of high school or below. The possible explanation for the results is that the higher education level one has pursued, the more ability he/she has to evaluate and determine the varying career opportunities as well as to plan for his/her own career path. Therefore, the needs for career development programs might be lower in terms of those employees with higher educational levels.

With respect to the perceived future career needs, aside from the Career Programs for Women and Minorities and Policies That are Designed to Better Accommodate the Needs of Dual-Career Couples, Females also expressed higher perceived needs for a Job Posting System than males. Concerning the fact that the "glass ceiling" effect may tend to prevent women from being promoted above certain managerial levels (Morrison et al., 1987; Baruch, 1999), job posting systems which publish job vacancies within the company may provide more opportunities for women who seek career advancement.

Additionally, due to the worldwide trends that female employees tend to be located in particular job functions (Hirsh & Jackson, 1990), job posting systems open choices for those women who want to make an attempt at alternative career fields. Furthermore, the likely explanation regarding the higher needs expressed by males for the Succession Planning is that men possess stronger ambition than females for career advancement and achievement. They desire the promotions and career success not only for the expectation and responsibilities of themselves and their families, but the pressure from fulfilling the traditional roles of masculinity and socialization as well. Succession planning can satisfy the male employees demand for enhancing their career advancement by developing their leadership abilities and evaluating the potential for promotion of each managerial position.

Similar to the results of perceived career development program needs for current positions in terms of age level, older respondents expressed lower needs for most of the career development programs than younger respondents for future positions. The possible explanation for this result has been given in the previous section.

With respect to perceived career development program needs for future positions in terms of education levels, respondents with higher education levels perceived more needs for those programs designed for career advancement, professional growth, or higher-level positions. This may imply that employees with higher education levels attach importance to self development and growth and have greater expectations for their future career progression.

In this study, the statistically significant differences of perceived career development program needs that were obtained among the different demographic groups are consistent with the previous research and career development experts' suppositions (Miedzinski et al., 2001; Simonsen, 1997; Zinser, 1988; Leibowitz & Schlossberg, 1981).

Comparison of DDA & ANOVA

The post hoc results of the two procedures when applied to Research Question 6 in terms of current positions for Education were almost identical. The item that emerged as being identified by ANOVA and not in DDA was Item 13. This item clustered with Items 15 and 16 in EFA and thus represents the same construct.

In terms of Research Question 6 for future positions for Education, Items 18, 22, 23, and 24 were common to both post hoc solutions. Item 32 emerged as being important in DDA and Item 12 was statistically significant in ANOVA. Since these two items (12 and 32) clustered together in EFA, the results of the two post hoc procedures are in agreement.

For Research Question 6 in terms of current positions for employees of different Age levels, many items (See Table 4.42) in both DDA and ANOVA were found to be common. Six of the eight DDA items were common to the ANOVA results. Items 15 and 17 were found to be important in DDA but not significant in ANOVA. Item 15 is clustered with Item 14 and therefore DDA and ANOVA are in alignment for these items. Item 17 appeared as an orthogonal career development program need and this is a unique result for the DDA when compared to ANOVA.

The items that emerged in ANOVA and not DDA (4, 6, 7, 10, 13, 20, 21, 22, and 27) clustered together as different factors in EFA and therefore represent the type of results for which the multiple ANOVA as a post hoc to MANOVA has been criticized.

The differences in the two post hoc procedures when applied to Research Question 6 for future positions for different Age levels were essentially the same as the results obtained for current positions. More items were identified using the ANOVA procedure than for DDA. Nine items (1, 4, 8, 14, 18, 28, 29, 30, and 33) were in common for the two procedures. Many of the non-common items for ANOVA (2, 5, 6, 7, 9, 10, 11, 12, 13, 22, 23, 27, 31, and 32) were found to cluster together in EFA and therefore would probably be detected as a group of significant items in ANOVA. This result is consistent with the notion that in DDA items that cluster together result in one or two of the items are weighted for the function and the lower weighted items from DDA might be detected as being significant in ANOVA.

Over all, except for the ANOVA for Job Function for current positions and more items being declared significant using ANOVA for Age levels, the results obtained by the two post hoc procedures were fairly comparable. The criticisms leveled against these two procedures as post hoc tests to MANOVA need further empirical investigation.

Research Question 7

Are there significant differences in the proportion of respondents' perceptions that the company already provided the selected career development programs?

Findings

In general, there were significant differences between the proportions of responses on each of the perceived career development programs with regard to whether the respondents believed the company already provided the career development programs. A non-significant difference was found only for the Program Of Paid and Unpaid Parental Leave. A majority of the respondents expressed that they believed the company already provided six of the 33 career development programs (Employees' Service Record, Job Rotation Programs, Tuition Refund Programs, Mentoring Programs, Realistic Job Previews and Introduction Of Company, and Incentives for Early Retirement). However, the rest of the 33 career development programs were perceived as not being provided by the company by over half of the respondents.

When analyzing the responses by Job Function, significant differences were found for seven of the 33 career development programs. The respondents in the classification of Management were more likely to believe the company already provided the Job Rotation Programs and Preretirement Counseling Workshops than those in the other classifications. The respondents in the classification of Technology were more apt to express that they believed the company didn't provide Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples, Dependent Care Services, and Paid and Unpaid Parental Leave. The respondents in the classification of Business/Sales

were more likely to express that they believed the company didn't provide Career Planning Workshops and Supervisors Workshops on Older Worker Issues. When analyzing the responses according to Job Role, significant differences were found for eleven of the 33 career development programs.

Discussion

General Perspectives

The respondents expressed that the majority of the career development programs were not provided by the company except for the following programs: Employees' Service Record, Job Rotation Programs, Tuition Refund Programs, Mentoring Programs, Realistic Job Previews and Introduction of Company, and Incentives for Early Retirement. These results are similar to Baruch and Peiperl's study (2000). Their study was conducted to survey 194 United Kingdom companies to explore how career management practices were approached by the companies. The results indicated that the basic practices, such as formal education and job rotation, were most frequently used in the companies. The findings of the present study also parallel the research findings of Wei (1989) who investigated the status of implementation of career development systems in Taiwanese public sectors, including the TPC. She concluded that the career development systems were seldom implemented in Taiwanese public sectors. Although this exploration of status regarding implementation of career development programs in the Taiwanese public sectors was undertaken more than ten years ago, the present finding revealed that the career development program still isn't perceived as widespread to date.

Although most of the career development programs were perceived to be highly demanded by the respondents, the majority of the career development programs as expressed by employees were thought not to be provided by the company. The substantial discrepancy between employees' career development program needs and existing career development programs in the company were also reported and is consistent with Tsai's study (1997). Compared to western countries, career development programs have been widely practiced by large-scale enterprises and have been reported as having effective outcomes (Gutteridge, Leibowitz, & Shore, 1993; Graham & Nafukho, 2004; Baruch & Peiperl, 2000).

Perspectives in terms of Job Function

When the responses among the three job functions for the 33 dependent variables were compared, although the majority of the respondents indicated that these career development programs were not provided in the company, the respondents in the classification of Management were more likely to express that the company already provided the career development programs, including Career Planning Workshops, Job Rotation Programs, Supervisors Workshops on Older Worker Issues, and Preretirement Counseling Workshops, as compared to the respondents in the classification of Business/Sales and Technology. The possible explanation for this is that employees with different job functions have different job responsibilities. Most managerial employees are responsible for carrying out or dealing with organizational personnel policies. They are more likely to be aware of the policy decisions and resource information. On the contrary, technical and sales employees in charge of specialized and professional duties

might not be acquainted with the welfare, benefits, and personnel policies. Besides, they might lack interest in these activities provided in the company.

On the other hand, technical employees were more likely to believe that the company did not provide Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples and Paid and Unpaid Parental Leave than managerial and sales employees, whereas the sales employees are apt to believe the company already provided these two programs. Additionally, the ambiguous opinions were derived when respondents were asked about the two programs: Paid and Unpaid Parental Leave and Dependent Care Services. The percentages of the respondents that believed these programs had been provided or had not been provided are essentially equal. Given the result from these findings, it might imply that the problem of internal communication of policies and information among different job functions might exist and should be addressed. Aside from the possibility of internal communication issues, an alternative explanation is that the definition of these programs are probably ambiguous to the employees in different job functions.

Perspectives in terms of Job Role

When the responses among the three job roles for the 33 dependent variables were compared, Upper-Managers were more likely to express they believed the company already provided the programs that were found to exhibit significantly different responses among the three job roles. The findings of the discrepancies of perceptions between Upper Managers and Employees are consistent with the findings of Baruch's research (1996). Baruch conducted a survey of 846 managers and employees of

managerial potential in U.K. and Israel to detect the actual use of career planning and management techniques and activities. It was found that disagreement existed among the respondents referring to the existence of the techniques, both at top management and employee levels. Possible explanations purposed by the researcher regarding the finding were: “(1) the ambiguity of the nature as well as the definition of the different techniques; and (2) a real lack of knowledge that can be caused by distortions in organizational communication” (p.47). The low level of acquaintance of employees with the programs which have existed in the TPC may imply that internal communication of policy decisions and information between Upper-Manager and Employees might be relatively weak.

Research Question 8

Are there differences in the proportion of respondents' perceptions that the company should provide the selected career development programs?

Finding

In terms of overall responses, there were significant differences between the proportions of responses on each of the career development programs with regard to whether the respondent thought the company should provide career development programs. An overwhelming majority of the respondents thought that the company should provide most of the career development programs. Only 58.9% of the respondents indicated that the company should provided the career program associated with Salary Reduction. Nearly one-fourth of the respondents thought that Job-Sharing Programs and Career Simulation & Assessment Centers should not be provided in the

company.

In terms of job function, significant differences were found only on three of the 33 career development programs. More respondents in the classification of Management thought the company should provide Downward Moves and Job-Sharing Programs than did respondents in the other two classifications. More respondents in the classification of Technology thought the company should provide Career Advisers or Functional Representatives as compared to the respondents in the classification of Business/Sales.

In terms of job role, significant differences were obtained for eight career development programs. More Employees compared with Line-Managers and Upper-Managers responded that the company should provide A Job Posting System, Midcareer Development Programs, Flexible Work Schedules, Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples, Dependent Care Services, and Career Advisers or Functional Representatives. On the other hand, more Upper-Managers compared with Line-Managers and Employees thought that the company should provide Job Rotation Programs. More Upper-Managers and Line-Managers thought that the Job-Sharing Program should be provided by the company than employees.

Discussion

General Perspective

The agreement which was found among the respondents referring to the perceptions that the company should provide the selected career development programs was not unexpected. An overwhelming majority of the respondents expressed that the company should provide most of the career development programs. This parallels a

study of the TPC employees' career planning, education, training and performance in a publicly-owned organization (Chang, 1999a). An examination of Chang's findings revealed that the majority of TPC's employees agreed that the company should establish a career planning system and emphasize the career planning of each employee. In view of the results from the present study that most of career development programs are perceived as being needed by the employees and that the employees all agreed that the career development programs should be provided by the company, the implementation of career development programs is urgently required. With respect to the program of Salary Reduction, more than half of employees thought that the company should not provide this program in spite of the program being designed to replace the possibility of reducing the staffing due to the policies of privatization.

Perspectives in terms of Job Function

With respect to the career development programs of Job Sharing and Salary Reduction, Management personnel tended to agree that these programs should be provided as compared to employees in the Technology and Business/Sales categories. The possible explanation for this finding is that due to differences in job responsibility, managerial employees are more likely to engage in the process of policy decision and be aware of policy information. Regarding the changes that are going to occur in the TPC, such as privatization and staffing reduction, organizational needs might be the priority concerns for the managerial employees and since the career development programs of job sharing and salary reduction are an attempt to replace the possibility of lay-offs, these programs are more acceptable to the managerial employees.

With respect to the program of Career Advisers or Functional Representatives, the Technical employees are more apt to express that the program should be provided in the company. As has been mentioned by Leibowitz et al (1986), organizations are confronted with the challenge of motivation, retention, and enhancement of productivity among their technical employees. The technical employees might be interested in seeking promotional opportunities, more challenging and varied tasks, and strategies for coping with the rapid obsolescence of technical skills. The program of career advisers or functional representatives can provide them information about alternative job opportunities and requirements and give them an overview of the possibilities of other career development processes and opportunities.

Perspectives in terms of Job Role

More Employees compared with Line-Managers and Upper-Managers responded that the company should provide the following programs: A Job Posting System, Midcareer Development Programs, Flexible Work Schedules, Policies That Are Designed to Better Accommodate the Needs of Dual-Career Couples, Dependent Care Services, and Career Advisers or Functional Representatives. This finding exactly matches with the finding in the previous research question. The needs for these career development programs appeared to be significantly different between the Employees and Managers. Employees showed higher perceived needs for these career development programs than Line-Managers and Upper-Managers. Given these findings, it is reasonable that employees are more willing than Line-Managers and Upper-Managers to view that these career development programs should be provided in the company.

On the other hand, more Upper-Managers compared with Line-Managers and Employees thought that the company should provide Job Rotation Programs. As has been discussed previously, job rotation programs have been widely recognized as a function for improving managerial performance (Longenecker & Neubert, 2003). Job rotation is viewed as a useful practice for improving managers' overall performance. Additionally, job rotation not only provides the manager opportunities to learn and develop new skill sets, but also improves his/her understanding of the interrelationships between jobs within the organization as well (Campion & Cheraskin, 1994). These facts indicated by the literature provide possible explanations of why Upper-Managers were more likely to express needs for this program.

Conclusions

Within the framework and limitations of this study, the following conclusions concerning the Research Questions seem warranted:

1. In terms of current positions, (1) Tuition Refund Programs and On-The-Job Training/Internal Training are rated as the highest needed career development programs; (2) Salary Reduction is the lowest needed career development program for white-collar TPC employees across three types of Job Function (Technology, Management, and Business/Sales).
2. In terms of future positions, (1) Tuition Refund Programs and On-The-Job Training/Internal Training are rated as the highest needed career development program; (2) Salary Reduction and Dependent Care Services are the lowest needed career

development programs for white-collar TPC employees across three types of Job Function (Technology, Management, and Business/Sales).

3. In terms of current positions, (1) Tuition Refund Programs is rated as the highest needed career development program; (2) Salary Reduction is the lowest needed career development program for white-collar TPC employees across three types of Job Role (Employees, Line-Managers, and Upper-Managers).
4. In terms of future positions, (1) Tuition Refund Programs are rated as the highest needed career program; (2) Salary Reduction is the lowest needed career development program for while-collar TPC employees across three types of Job Role (Employees, Line-Managers, and Upper-Managers).
5. There are differences of career development needs in terms of Job Function for current and future positions. (Business/Sales personnel tend to be different from Technology and Management personnel.)
6. There are differences of career development needs between the current and future positions in terms of job roles. (Upper-Manager personnel tend to be different from Line-managers and Employees.)
7. Perceptions of career development program needs are a function of demographic characteristics of Gender, Age, and Education. (Females express high needs in activities centered around women and families; Older personnel are more concerned with retirement issues; more highly education personnel generally have higher perceived career development program needs than the less educated personnel.)
8. The opinions of whether the company already provides selected career development

programs are different for individuals in three types of Job Function (Technology, Management, and Business/Sales).

9. The opinions of whether the company already provides selected career development programs are different for individuals in three types of Job Role (Employees, Line-Managers, and Upper-Managers).
10. White-collar employees believe that the majority of the career development programs should be offered by the company.
11. A few differences exist between individuals in different Job Functions in terms of perceptions as to whether the company should provide selected career development programs.
12. Employees in different Job Roles thought the company should provide different selected career development programs.

Recommendations

Recommendations for Research and TPC Career Development Practices

Within the framework and limitations of this study and based upon the findings and conclusions of this study, the following recommendations are made in two sections. The first relates to the conducting of further research which would contribute to the career development field. The second set of recommendations are specifically directed to the TPC in terms of career development program design.

Recommendations for Further Research

1. Little information has been reported in the literature and few empirical studies regarding the distinction of career development needs among different Job Functions

and Job Roles have been reported. In order to gain a better understanding of career development program needs among diverse occupational levels and types, more research to verify if there are differences or common patterns in the present findings is needed.

2. This study focused only upon one company. It would be of interest to conduct similar studies with samples from greater occupational diversity and from different types of government organizations as well as private organizations to determine the career development program needs throughout the organizations.
3. Comparisons across organizations with similar demographics may give further insights into the employees' career development program needs. A comparative study of other industrial organizations or other geographic areas, with similar demographic classification groups, to ascertain possible distinction of career development needs would appear to be indicated. Further studies could be conducted in various organizations (organizations with similar nature) in order to compare the career development program needs of employees with similar job roles and job functions across different organizations.
4. In general, the findings of this study revealed significant differences among the career development program needs of employees with different demographic characteristics (job function, job role, gender, age, and education). Further studies should be conducted by utilizing qualitative methods to gather more in-depth information about why various career development program needs are different among diverse demographic groups.

5. Additional research could be undertaken to exam the relationships between different career development needs among diverse demographic groups and other organizational variables, which may include the degree of career and job satisfaction, career anchors, and organizational commitment.
6. Since this study focused on a given time period, a longitudinal study needs to be established or a follow-up study be undertaken within the same company to investigate the extent to which employees' career development program needs change and a career development system has been established.
7. There are six constructs underlying the perceived career development needs as assessed by the "Career development needs assessment survey" instrument. These factors require further investigation.

Recommendations for Taiwan Power Company Career Development Practices

Based on the findings of this study, the following recommendations are posited:

1. The Taiwan Power Company should provide employees with formal career development programs tailored to the different career needs of diverse demographic groups (Gender, Age, and Education).
2. It is recommended that the results of this study serve as a foundation to design career development programs for the Taiwan Power Company.
3. The TPC should place a high priority on the career development programs related to Tuition Refund Programs, On-The-Job Training/ Internal Training, and Employees' Service Record for their white-collar employees.
4. The TPC needs to give particular attention to the career development programs of

Employees' Service Record, Incentives for Early Retirement, Succession Planning, and Preretirement Counseling Workshops for Upper-Managers, since these programs were considered the high needs areas for this group.

5. Since the career development program of Salary Reduction were rated as a low need area across all groups, the TPC should not place a great deal of emphasis on this program.
6. The results of this study indicate that the problem of internal communication of policies and information among different job functions might exist and should be addressed by the company. The consistent definitions as well as widespread advertisement of the policy and development program are recommended.
7. The fact that the employees thought that majority of the selected career development programs should be provided should be considered by the TPC.
8. A formal linkage for employees' career development needs with career development efforts under a plan for human resource systems should be established.
9. Since conducting needs assessment is only the first step in implementing a comprehensive career development system, further efforts described in the literature need to be incorporated into the process of career development system design.
10. Since career development needs were assessed only on white-collar employees in the company, further investigation incorporating the career development needs of blue-collar employees is needed.
11. The alignment between the results from the employees' career development needs assessment and organizational development strategies is needed in order to provide a

greater guidance in the construction, implementation, and delivery of career development programs in the company.

12. One of the research questions explored whether the employees believed the organization already provided the career development program. Thus, it is recommended that the career development activities and programs along with other training programs need to be defined so that career development programs may be better organized and cogently presented do the employees.
13. Career development needs assessment should be replicated in 3-5 years increments to update the self-expressed career development needs of TPC employees and provide information for possible redesign of career development programs.

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APPENDIX A

SURVEY QUESTIONNAIRE IN ENGLISH AND CHINESE

CAREER DEVELOPMENT NEEDS ASSESSMENT SURVEY

Dear Ladies and Gentlemen:

This questionnaire before you is an academic survey questionnaire which will be used to identify you actual career development needs, provide data for a dissertation and, facilitate the TPC in planning the personnel training and career development programs. There are no right or wrong answers to the questions of this questionnaire. Please answer the questionnaire according to your actual situation and opinion. Since this questionnaire is for the purpose of academic research, all of your answers will remain completely anonymous.

According to research methodology, you were randomly selected to participate in the study. Your support and help is critical for accomplishing this research study. Thank you so much for your cooperation. Your efforts are greatly appreciated.

Best regards,

Texas A&M University, College Station, Texas
 Department of Educational Administration and Human Resource Development
 Yi-Hsuan Lee
 Ph.D. Student
 Dr. Kenneth E. Paprock
 Professor, Committee Chair

Introduction

1. This questionnaire is designed to identify your actual career development needs for 33 career development programs. Your answers to this survey could have an effect on program planning for the employee career development in the Taiwan Power Company. All of your answers will remain completely anonymous. Responses will be presented in summary form only and your individual responses will not be identified. Please feel free to answer the questions.
2. This survey questionnaire consists of three sections. Please check (√) the box which best indicates the degree you need this item according to your actually situation.

Part II: Survey on the provision of the career development programs

Instruction: the purpose of this part is to request your personal opinion on the following 33 career development programs regarding the company already provides or should provide the programs. Please circle Yes or No based on your actual perspective.

	<u>I believe</u> the company <u>already provided</u> this career development program		<u>I think</u> the company <u>should provide</u> this career development program	
	Yes	No	Yes	No
1. On-the job training/ Internal training				
2. Career workbooks (Note: help employees identify their strengths, weaknesses, job opportunities and assist employees in determining career goals and setting up the steps to reach the career goals.)				
3. Career planning workshops (Note: help employees identify how to prepare and realize individual career strategies, and further establish an actual career plan through the activities of group learning and discussion)				
4. Employee career counseling				
5. Employees' service record (Note: record employees' individual data, including experiences, educational level and professional specialties, for using by employer to assign the appropriate positions based on employees' skills.)				

	<u>I believe</u> the company <u>already provided</u> this career development program		<u>I think</u> the company <u>should provide</u> this career development program	
	Yes	No	Yes	No
<p>6. Employees' career paths design (Note: provide individual career path design according employees' different positions, career goals, and time schedule)</p>				
<p>7. A career resource center (Note: provide materials such as books, magazines, video media relevant to career development)</p>	Yes	No	Yes	No
<p>8. A job posting system (Note: announce job opportunities inside or outside the company)</p>	Yes	No	Yes	No
<p>9. Career simulation & assessment centers (Note: conduct employee evaluation and simulation activities, including tests, interviews, group discussions, in order to evaluate employees' strengths, weaknesses and their career orientation)</p>	Yes	No	Yes	No
<p>10. Psychological testing for vocational interests and work attitudes (Note: help employees identify their career needs and preferences.)</p>	Yes	No	Yes	No
<p>11. Promotability forecasts (Note: conducted by managers to identify employees with high career potential)</p>	Yes	No	Yes	No
<p>12. Succession planning (Note: appraise middle managers' leadership abilities in order to assessing their ability to replace those in the senior positions.)</p>	Yes	No	Yes	No

	<u>I believe the company already provided this career development program</u>		<u>I think the company should provide this career development program</u>	
	Yes	No	Yes	No
13. Job rotation programs				
14. Tuition refund programs (Note: provide financial support for employees' tuition for job-related courses)	Yes	No	Yes	No
15. Mentoring programs (Note: senior employees play the teacher role to advise junior employees for improving relationships between junior and senior employees)	Yes	No	Yes	No
16. Realistic job previews and introduction of company (Note: provide employees actual and correct job contents and accurate views of the company.)	Yes	No	Yes	No
17. Salary reduction (Note: in order to cope with reduction in staffing levels, employees can choose between reducing their salaries or reducing their work hours in order to avoid being lay off.)	Yes	No	Yes	No
18. Midcareer development programs (Note: provide continuing education programs or sabbatical leaves in order to help employees overcome career plateau and improve any dated skills.)	Yes	No	Yes	No

	<u>I believe</u> the company <u>already provided</u> this career development program		<u>I think</u> the company <u>should provide</u> this career development program	
	Yes	No	Yes	No
<p>19. Supervisors workshops on older worker issues (Note: to assist supervisors in being aware of older workers' psychological, physical and work laws issues)</p>	Yes	No	Yes	No
<p>20. Preretirement counseling workshops (Note: facilitate preretirees' life and their career adjustment.)</p>	Yes	No	Yes	No
<p>21. Incentives for early retirement</p>	Yes	No	Yes	No
<p>22. Flexible work schedules (Note: offer opportunities for part-time work, job sharing, seasonal work, and work-at-home)</p>	Yes	No	Yes	No
<p>23. Special development programs for "fast track" or "high-potential" employees (Note: recruiting and selecting high-potential employees to provide them fast developmental opportunities.)</p>	Yes	No	Yes	No
<p>24. Career counseling training for supervisors (Note: provide training to supervisors on how to counsel their employees on career development.)</p>	Yes	No	Yes	No
<p>25. Outplacement programs for terminated employees (Note: assist terminated employees in job-seeking counseling and career adjustment services.)</p>	Yes	No	Yes	No

	<u>I believe</u> the company <u>already provided</u> this career development program		<u>I think</u> the company <u>should provide</u> this career development program	
	Yes	No	Yes	No
<p>26. Career programs for women and minorities (Note: provide career development program for women and minorities within the company)</p>	Yes	No	Yes	No
<p>27. Policies that are designed to better accommodate the needs of dual-career couples (Note: implement polices regarding job transfers, relocation, promotions, and benefits for satisfying the needs of dual-career families)</p>	Yes	No	Yes	No
<p>28. Paid and unpaid parental leave (Note: including nourish leave, maternity leave, and paternity leave for helping employees caring for their family needs.)</p>	Yes	No	Yes	No
<p>29. Dependent care services (Note: services including establishing near-site child care center, child care subsidies, and child care directories)</p>	Yes	No	Yes	No
<p>30. Job-sharing programs (Note: two employees split the work for one full-time job in order to cope with the policies of down-sizing or accommodating employee individual needs)</p>	Yes	No	Yes	No
<p>31. Work-family programs (Note: help employees manage or cope with their work-family role conflicts.)</p>	Yes	No	Yes	No

32. Future forums

(Note: held by management panels for providing future industrial environmental trends and its impacts on employees' career choices)

33. Career advisers or functional representatives

(Note: assigning representatives from each division in order to offer employees information regarding job requirements and opportunities of the division)

<u>I believe</u> the company <u>already provided</u> this career development program		<u>I think</u> the company <u>should provide</u> this career development program	
Yes	No	Yes	No
Yes	No	Yes	No

Part III

Instruction: the purpose of this part is to request your personal information to assist in analyzing the data. Your personal information will not be revealed in any report and dissertation. Please answer the following questions according to your actual situation. Thank you for your help and support.

1. Gender: 1. Male 2. Female

2. Age:

1. 21-25 years 6. 46-50 years

2. 26-30 years 7. 51-55 years

3. 31-35 years 8. 56-60 years

4. 36-40 years 9. 61 and above

5. 41-45 years

3. Marital Status: 1. Single 2. Married 3. Other

4. Educational Level: 1. Middle school or below 2. Senior high school

3. Vocational school 4. College 5. Graduate

school

5. Your organizational unit: _____

6. Your position: 1. Manager 2. Non-manger

7. Your official grade _____

8. Your working years in the TPC _____ year _____ month

9. Your working years in the current position _____ year _____ month

10. Your job function in the TPC:

1. Management 2. Business 3. Technology

11. If you are a manager please indicate your manager level (If not, please go to the next question):

1. Line-manager 2. Middle-manager 3. Upper-manager

13. Your degree of satisfaction for current job and career (please check the appropriate response):

a. Your current position

1. Very satisfied 2. Satisfied 3. Undecided 4. Dissatisfied 5. Very
dissatisfied

b. Your career progression to date

1. Very satisfied 2. Satisfied 3. Undecided 4. Dissatisfied 5. Very
dissatisfied

c. Your future career prospects

1. Very satisfied 2. Satisfied 3. Undecided 4. Dissatisfied 5. Very
dissatisfied

生涯發展方案需求評估調查

各位女士、先生您好：

目前您手上這份問卷是一份學術問卷，目的在了解您生涯發展需求的實際狀況，以作為撰寫博士論文的重要參考及協助台電人事訓練及生涯發展方案計劃。其答案無所謂對錯，請依照您的實際情形與看法，惠予填答。由於本問卷係供學術研究之用，資料絕對保密，故請放心填答。

由於本研究係以抽樣方法實施調查，您的鼎力支持，為本研究是否成功的重要關鍵。懇請您的支持與協助，在此致上十二萬分的謝意。

敬祝

身體健康 萬事如意

德州農工大學教育人力資源發展所
Texas A & M University, College Station
Department of Educational Human Resource
Development
博士研究生：李憶萱 敬上
指導教授：Dr. Kenneth E. Paprock
聯絡電話：(02) 2363-9779

問卷說明：

1. 本問卷藉由 33 個生涯發展方案來瞭解您的生涯發展需求及實際狀況。

您的回答對台電規劃員工生涯發展方案將有很大助益。資料絕對保密，

請安心作答。

2. 本問卷共有三個部份，填寫相當容易。填答時，請依您的實際需要及狀況，在適當的打勾或依據題目指示作答即可。

第二部份 生涯發展方案需求狀況調查

填答說明：這部份主要是在了解您對以下相同於第一部份的 33 個生涯發展方案

依您個人的意見認為公司是否已提供或應該提供此方案。請依照

	我相信公司已提供此項生涯發展方案		我認為公司應該提供此項生涯發展方案	
	是	否	是	否
1. 在職訓練／內部工作訓練				
2. 生涯規劃手冊 (註：手冊是幫助員工了解自身的優、缺點、工作機會並幫助員工擬定生涯目標計畫，設定達成生涯目標的步驟)	是	否	是	否
3. 生涯規劃研習營 (註：透過團體研習或討論活動，幫助員工瞭解如何準備及實現個人之生涯策略，進而訂定務實的生計計畫)	是	否	是	否
4. 員工生涯諮商	是	否	是	否
5. 員工服務記錄卡 (註：記錄員工個人資料，包括經歷、學歷及專長，以便雇主能依員工的才能，派任適當職位)	是	否	是	否
6. 員工生涯路徑設計 (註：針對員工不同職位、生涯目標及時間表，提供個別的生計路徑設計)	是	否	是	否
7. 生涯資訊中心 (註：提供生涯有關之書籍、雜誌、視聽媒體等資料)	是	否	是	否
8. 就業訊息公告系統 (註：提供公司內、外部的工作機會)	是	否	是	否
9. 生涯模擬&考評中心 (註：針對員工實施考評及模擬活動，包含測驗、訪談、小組討論等，藉由這些活動幫助評定員工之優缺點及生涯方向)	是	否	是	否

	我相信公司已提供此項生涯發展方案		我認爲公司應該提供此項生涯發展方案	
	是	否	是	否
10. 職業興趣及工作態度之心理測驗 (註：幫助員工了解自己的生涯需求及傾向)				
11. 潛能預測 (註：由管理人員進行，以發掘具有高潛力的員工)	是	否	是	否
12. 接棒計劃 (註：定期評定中階主管的領導潛能，藉以評定其未來接棒能力)	是	否	是	否
13. 工作輪調	是	否	是	否
14. 學費補助方案 (註：補助員工學習與工作相關課程的學費)	是	否	是	否
15. 師徒方案 (註：資深員工扮演導師角色指導新進員工，並促進新員工與資深員工之關係)	是	否	是	否
16. 實際工作內容或公司概況簡介 (註：提供員工實際、正確的工作內容及公司概況簡介)	是	否	是	否
17. 員工減薪 (註：爲配合人事精簡，員工可選擇減薪、縮短工作時數，以取代被裁員的危機)	是	否	是	否
18. 中年生涯發展方案 (註：提供進修方案或休假，以幫助中年生涯員工克服生涯瓶頸和改進其過時之技能)	是	否	是	否
19. 主管人員之老年員工問題工作研習會 (註：幫助主管人員了解老年員工之心理、生理、工作法令等議題)	是	否	是	否
20. 退休前諮商和研習會 (註：幫助即將退休之員工生活及生涯調適)	是	否	是	否

	<u>我相信公司已提供此項生涯發展方案</u>		<u>我認為公司應該提供此項生涯發展方案</u>	
21. 提前退休之激勵方案	是	否	是	否
22. 彈性工作時間方案 (註：提供兼職工作、工作分攤、季節性及在家工作的選擇機會)	是	否	是	否
23. 具相當潛力員工特殊發展方案 (註：藉由招募及篩選潛力高的員工，給予其快速發展機會)	是	否	是	否
24. 主管人員之生涯諮商能力訓練 (註：提供主管人員輔導員工生涯發展之訓練)	是	否	是	否
25. 轉業輔導方案 (註：協助即將遭到解僱員工的就業輔導及生涯調適服務)	是	否	是	否
26. 婦女及弱勢團體之生涯發展方案 (註：提供公司內部之婦女及弱勢員工的生涯發展方案)	是	否	是	否
27. 滿足雙薪員工需求之政策 (註：制定工作輪調、輪班、晉升、福利等政策，以滿足雙薪員工家庭生活之需求)	是	否	是	否
28. 有薪 / 無薪之家庭照顧假 (註：包含育嬰假、產假、家居看護等，以協助員工兼顧家庭之需求)	是	否	是	否
29. 提供育兒服務 (註：服務項目包括公司內設立托兒中心、育兒獎學金、印製育兒指南)	是	否	是	否
30. 工作分攤方案 (註：針對公司裁減政策或員工個人需要，配合將一職務由二位員工共同分攤負責)	是	否	是	否
31. 工作－家庭方案 (註：幫助員工學習管理或解決工作－家庭角色衝突之方案)	是	否	是	否

32. 未來趨勢論壇

(註：由主管人員舉辦未來趨勢論壇，以提供未來工商環境趨勢及對員工生涯抉擇、機會的影響)

33. 生涯顧問或部門代表

(註：由各部門選派代表，以提供員工有關各部門之資訊、工作要求及工作機會等)

我相信公司已提供此項生涯發展方案		我認為公司應該提供此項生涯發展方案	
是	否	是	否
是	否	是	否

第三部份

填答說明：本部份主要在了解您的背景資料，以供整體分析與研究，您的個人基本資料不會單獨在任何報告或論文中揭露。請依您的實際情況及看法安心作答，謝謝您的協助與支持。

1. 性別： 1.男 2.女

2. 年齡： 1. 21-25 歲 6. 46-50 歲
 2. 26-30 歲 7. 51-55 歲
 3. 31-35 歲 8. 56-60 歲
 4. 36-40 歲 9. 61 歲以上
 5. 41-45 歲

3. 婚姻狀況： 1.未婚 2.已婚 3.其他

4. 教育程度： 1.國（初）中或以下 2.高中（職） 3.專科
 4.大學 5.研究所或以上

5. 請問您目前服務單位_____

6. 您的職位為： 1.主管 2.非主管

7. 請問您目前職等為_____等

8. 您在台電的工作年資為_____年_____月

9. 您在目前職位的年資為_____年_____月

10. 您在台電的工作性質為：

- 1.管理 2.業務 3.技術

11. 如果您是主管人員，請問您的主管階級為(如果您不是主管，請跳至下一題)：

- 1.基層主管 2.中階主管 3.高階主管

12. 您對目前職位或生涯的滿意度 (請於每一項勾選您認為適當的選項)：

a. 您對目前職位

- 1.非常滿意 2.滿意 3.未決定 4.不滿意 5.非常不滿意

b. 您對目前為止的生涯進展

- 1.非常滿意 2.滿意 3.未決定 4.不滿意 5.非常不滿意

c. 您對未來的生涯展望

- 1.非常滿意 2.滿意 3.未決定 4.不滿意 5.非常不滿意

APPENDIX B

WRITTEN PERMISSION FROM THE TAIWAN POWER COMPANY

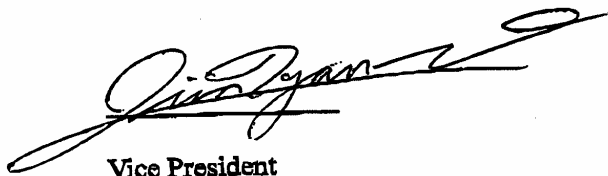
TAIWAN POWER COMPANY242 Roosevelt Road, Section 3
Taipei 10016, Taiwan, Republic of China

To Ms. Yi-Hsuan Lee,

I, Lee Jiin-Tyan, as the vice president of Taiwan Power Company am glad to inform you that we are willing to provide you permission to conduct the research regarding your survey of career development needs assessment in Taiwan Power Company.

We are willing to assist you in conducting your research.

Sincerely,



Vice President

Phone: (02)2965-1234
Fax: (02)2365-0037

E-Mail: u056921@taipower.com.tw
Web Site: <http://www.taipower.com.tw>

APPENDIX C

LIST AND SIGNATURES OF REVIEW PANEL MEMBERS

List of Review Panel Members

The following persons served as panel members to review the questionnaire and personal data form for the survey:

Name: Chun-Kuei Liao
 Position: Division Head of training
 Department: Personnel Dep.
 Address: _____

Signature: Chun-Kuei Liao

Name: Hsu Hsun-Chin
 Position: Section chief of employment
 Department: Personnel Department
 Address: 6F, 19, sec. 2, Keelung Rd. Taipei, Taiwan

Signature: Hsu Hsun-Chin

Name: Fang-Tsan Tsai
 Position: Section chief of Business Department
 Department: Business Department
 Address: 7F, Lane 313, Siang Chiang Road

Signature: Fang-Tsan Tsai

Name: Shu-Lan Yang
 Position: _____

Department: Personnel Department
 Address: _____

Address: _____

Signature: Shu-Lan Yang

Name: Ting-Yun Kuo
 Position: Division Head of manpower's planning
 Department: Personnel Department
 Address: _____

Address: _____

Signature: Ting-Yun Kuo

Name: Hsien-pin
Stephania Yu
 Position: Division Head of Funding
 Department: Finance Department
 Address: _____

Address: _____

Signature: _____

Name: Jung Chieh Yang Name: _____
Position: Division Head of welfare benefit Position: _____
Department: Personel Dept Department: _____
Address: _____ Address: _____
Signature: Jung Chieh Yang Signature: _____

Name: _____
Position: _____
Department: _____
Address: _____
Signature: _____

VITA

Yi-Hsuan Lee
2F, No. 5, Aly. 19, Ln. 283, Roosevelt Rd., Sec. 3,
Taipei, Taiwan
Email: sifone21@ms4.hinet.net

Education

- 2005 Doctor of Philosophy, Educational Human Resource Development, Texas A&M University, College Station, Texas
- 1999 Bachelor of Art, Philosophy, Fu Jen Catholic University, Taiwan

Experience

- 2003/01—2003/08 Research Data Analyst for Assessment of AP Participation and College Success at Texas A&M University. Grant from the Texas Education Agency and the Texas A&M University System's Texas Center for AP/IB Initiatives
- 2003/09—2004/05 Research Data Analyst for A Continuation of Assessment of AP Participation and College Success at Texas A&M University. Grant from the Texas Education Agency and the Texas A&M University System's Texas Center for AP/IB Initiatives
- 2004/06—2004/08 Graduate Assistant in the Department of Educational Administration and Human Resource Development. Responsible for Data Analysis of the 2002-2003 EAHR Admission Data
- 2004/09—2005/05 Graduate Assistant in the Department of Education Administration and Human Resource Development. Responsible for Departmental Assistance in Research Design and Data Analysis Assigned by Dr. Homer and Tolson and Dr. Robert Slater.